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FOREWORD

A new generation of forestry projects began to emerge in the seventies. This was prompted by a growing concern, at policy level, for issues of the environment and alleviation of rural poverty. Moreover, development objectives were increasingly directed at the sustainability of secure livelihoods for the rural poor. While forestry projects have evolved significantly towards addressing these issues Agenda 21 and the "Forest Principles" adopted by UNCED have placed even more emphasis and urgency on the need for project impact assessments to address this broader range of concerns. Now, the challenge is to develop a more holistic process which:

(a) integrates and coordinates the assessment activities through all stages in forestry project development and implementation so that sustainability considerations are taken into account; and

(b) integrates the assessment of impacts related to sustainability and security of livelihood and their distribution, positive or negative, among different target groups, and economic efficiency in the allocation of resources.

The present publication, which addresses assessment issues and strategies, has been written with these challenges in mind. It provides the broader framework within which specific types of assessments can be carried out such as the Economic Assessment of Forestry Project Impacts which was published as FAO Forestry Paper 106 in 1992. This Forestry Paper is the result of a collaboration between the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme (UNEP), the World Bank, and the Environmental and Natural Resource Policy and Training (EPAT) project sponsored by the U.S. Agency for International Development (USAID). While the opinions expressed are those of the authors, the document reflects a combination of the perspectives and experiences of the collaborating Organizations.

The publication was prepared under the leadership of the Policy and Planning Division of the Forestry Department of FAO. The authors are staff members of the collaborating Organizations except for Mr. J.E.M. Arnold from the Oxford Forestry Institute, Dr. H. Gregersen and Dr. A. Lundgren from the College of Natural Resources of the University of Minnesota and Dr. D. Gow who left FAO since participating as a writer. Others who contributed to the publication are A. Molnar, M. Morell and T.A. White while R. de Camino, J. Laarman and M. Simula kindly reviewed the final draft and commented on it. Ms. Clara Schreiber provided editorial assistance along the various drafts of the manuscript.

It is very much hoped that all those involved in preparing or taking major decisions concerning forestry projects will use this publication as an important reference framework and that the approaches recommended will be widely adopted and thus contribute to the enhancement of capacities called for by UNCED's Agenda 21.

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INTRODUCTION

Some twenty years ago, forestry projects in developing countries were focused mainly on commercial industrial forestry and forest industry development. Now the focus of most national forestry development agencies is more on projects oriented towards direct improvement in the welfare of the rural poor and improvement of the environment—projects that involve community forestry, social forestry, natural forest conservation for local and global environmental benefits, and agroforestry projects that contribute to food security and self-reliance. With this shift in emphasis, and the associated shifts in the ways in which the forestry sector interacts with other sectors, has come a need for the development of new strategies and approaches for the assessment of forestry project impacts.

Project Impact Assessments

Forestry projects[1] have many different types of impacts on people involved in the project, on the broader economy, on local social, cultural, and political institutions, and on natural resource systems and the environment. It is these various impacts on people and society, and on natural resources and the environment, that are of concern in this discussion, particularly in terms of how they most effectively can be assessed.

Assessments provide information that decisionmakers need to:

- define problems and opportunities that merit project intervention;
- formulate, appraise, and choose among alternative designs of forestry projects;
- monitor and evaluate ongoing projects to improve project performance; and
- evaluate projects after completion to provide information to help improve the planning and implementation of future projects.

Policymakers and decisionmakers in national and international forestry development organizations recognize the need for adequate project assessments, and many guidelines for such have been produced in response to such needs. However, in practice assessment often is either neglected, or only partially or poorly executed, with important elements that affect impacts being ignored. Reviews of past assessment activity in the forestry/agroforestry sector suggest the need to improve the design and use of impact assessments by:

- *Including a broader range of project impacts in project assessments at the planning stage.* In the past, assessments have tended to focus on financial and economic impacts. Much less attention has been paid to social, institutional, and environmental impacts and the sustainability of projects. A recent review for the World Bank of 115 agriculture and rural development projects approved between 1983 and 1986 found that "relatively few projects have dealt explicitly with long-term resource management issues ... only about 50 percent of projects mention resource problems in the project rationale" (Barnes and

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[1] A project is "a specific activity, with a specific starting point and a specific ending point, intended to accomplish specific objectives ... which logically seems to lend itself to planning, financing, and implementing as a unit." Developing an activity in the form of a project "encourages conscious and systematic examination of alternatives," and "establishes a framework for analyzing information of different kinds." By limiting the magnitude of what is being dealt with in any one exercise, a project framework can also help make the task of generating the data needed for planning more manageable (Gittinger 1982).

Olivares 1988). Another area frequently neglected is the social and institutional impacts. A review of the large body of forestry project interventions in the Sahel reported that "few if any of the chosen approaches have solicited or encouraged local collaboration and participation ... many of the basic principles of project design are artificial, and in discord with local economic and ecologic realities or potentials," and that the implementing agencies were seeking to "apply laws which are inadequate, counter-productive and impossible to enforce" (Weber 1982). A survey of impact evaluation in agroforestry projects found that, of the 198 projects that provided information on the subject, less than half were attempting any type of impact evaluation, and most of this was confined to just evaluating numbers of trees planted and area under agroforestry (Scherr and Muller 1990).

- *Strengthening assessment procedures and improving the usefulness of outputs.* Even in the economic assessment area, performance in practice has been weak. A recent review of 170 publications dealing with agroforestry economics disclosed only 15 which provided a useable *ex post* economic analysis (Swinkels 1990). Another review found that reports of impact studies were often difficult to interpret or compare; with the project analysts displaying problems in selecting impact indicators and methods of evaluation, and in distinguishing intermediate and final impacts (Scherr and Muller 1990).

- *Linking assessment activity and associated data generation activities throughout the project development process.* In some organizations, the various assessment activities associated with a project tend to be isolated from each other, and little attempt is made to coordinate data collection and information from one stage to another. Consequently there is a lack of continuity in the way in which the project is being assessed, with different bases for assessment being adopted at different stages in the project's life. Also, decisions are often taken during the project development process on the basis of assessments of one type of impact only, e.g., economic impact, rather than on the basis of consideration of all the relevant impacts and the interactions among them. Thus, the project proposal could originate from an assessment in terms of technical criteria, such as wood yields, this is then examined in terms of its administrative and financial implications, and is finally appraised in economic, and possibly social, terms as it reaches completion. The danger with this sequential approach is that what may be technically best may not be viable in terms of one or more of the other social and economic criteria. By narrowing down the range of alternatives at an early stage in the project process, it is all too likely that the option which would best accord with the overall criteria and constraints faced in pursuing the project's objectives is prematurely discarded, or is never considered. Stronger links and a broader approach to impact assessment are needed throughout the project process.

- *Improving the effective use of assessments.* Decisions often are made on the basis of one type of impact, such as economic impact, rather than on the basis of a range of impacts and their interactions. Different impact criteria may be used at different stages of project development, so that assessment results at different project stages cannot be compared. Better links between project impact assessment and decisionmaking are needed.

The Purpose of This Document

Assessments of forestry projects are conducted to provide information needed to make informed decisions about projects at all stages in the lives of projects. Thus, information needs and priorities should be set throughout the project development process and clearly specified by decisionmakers working closely with analysts and those impacted by forestry projects.

The present document provides decisionmakers with a view of the strategic context and the issues that need to be considered in developing an effective process for forestry project impact assessments. Those doing assessments constantly have to make trade-offs, e.g., between detail/accuracy and cost/time constraints; between breadth of coverage and depth of coverage; and between quantitative and qualitative approaches. Decisionmakers and policymakers should be involved at the strategic level in making decisions concerning such trade-offs, since impact assessments should be undertaken to answer the questions that are important to them as well as those that are important to project participants, and people impacted by a project. As such, decisionmakers should participate in an interactive way with analysts and participants to make sure that the right questions are being asked and defined so that time and effort are not wasted on obtaining the wrong information, or too much information. Impact assessment activity can be expensive. Only enough information should be generated to satisfy the needs of the decisionmaker. Determining the point of sufficiency of information becomes, in and of itself, a strategic issue.

The poor record of past forestry project impact assessments, often related to poor project performance, is partly due to failure to appreciate the importance and even the nature of some of the impacts and the linkages between forestry projects and the institutional frameworks within which they exist. It also reflects the difficulties and problems that analysts, planners and decisionmakers are confronted with in trying to put assessment into practice for the new generation of forestry projects and activities. These weaknesses understandably have been of concern to governments and donors alike. The purpose of this document thus is to explore ways of strengthening the approaches to assessing impacts and to provide a strategic overview of institutional issues associated with the new generation of forestry/agroforestry projects and the assessment of their impacts.

Part I explores how the new generation of forestry projects contributes to sustainable development and how these projects fit within a broader institutional planning context. Institutions help determine the nature, extent and magnitude of forestry project impacts and, in turn, institutions can be impacted, sometimes significantly, by activities and projects in the forestry sector. Thus, institutions become a key consideration in looking at issues and strategies associated with forestry project impact assessment. Part I also looks at the intersectoral issues which arise in the relation to the broader role of forests in development. Part II deals more specifically with the implications of Part I in terms of strategies and processes for the assessment of forestry project impacts.

PART I

The New Generation of Forestry Projects: Their Role in Sustainable Development

The "new generation of forestry projects" started to grow some two decades ago, as projects focused increasingly on a great variety of issues beyond those associated with traditional industrial timber and wood products production. As indicated below, the *absolute* importance of the industrial component of forestry has not diminished; in fact it has grown. Rather, the *relative* importance of other dimensions of forestry and trees in land use has increased in terms of the agendas of development agencies, NGOs, and national decisionmakers. The importance of trees in land use and the various products and byproducts of trees and forests have, of course, been well-recognized by rural populations themselves for centuries.

Although not without growing pains, agroforestry and the broader concept of social forestry have come into their own, with a focus on rural welfare improvement and energy and food security. The important role of forests in terms of global change issues and environmental protection is becoming much better known. The use of trees in watershed management strategies and programmes is being expanded in various types of soil conservation and watershed protection programmes.

1

FORESTRY PROJECTS AND SUSTAINABLE DEVELOPMENT

The Concept of Sustainable Development

In recent years there has been growing recognition that many of the actions taken in order to generate development in the immediate future fail to sustain the momentum of growth in the longer term. At best they prove to be insufficiently robust or well conceived to become self sustaining, and simply fail after a while. At worst the short term achievements result in degradation or destruction of the stock of natural capital needed in order to maintain growth in the future.

There are many definitions of sustainable development. Pezzey (1989) suggests that most contain two common elements:

1. a concern for a lasting improvement in the well-being of people; and
2. a concern for protecting and maintaining the capacity of the natural resource systems that provide the basis for such improvements.

Thus, within forestry sustainable development has been defined as "... development involving changes in the production and/or distribution of desired goods and services from forests and from trees which result, for a *given target population*, in an increase in welfare that can be sustained over time" (Gregersen and Lundgren 1990). The concept implies *production* of goods and services desired by people, combined with *protection* of the natural resource base on which such production depends.

Forestry Projects and Sustainable Use of the Forest Resource

In forestry, as in any other field, the translation of this concept of sustainable development raises a number of issues. At its simplest, it implies restricting the harvesting of wood and other physical products of the forest to levels that can be maintained through sound forest management. But demand for forest products seldom evolves in a manner consistent with an even flow of these products from the forest. Growing populations could mean that demands for wood, for example, are greater in the future. On the other hand, changes in incomes, consumption patterns, technology, etc., could mean that future generations have less need for wood products—but more of other goods and services.

The concept may therefore be interpreted more usefully as sustaining economic benefits rather than physical outputs. However, problems still arise in determining future values, or changes in relative priorities among the different benefits derived from forests. The forest is likely to have different values to different categories of user, and these are not necessarily congruent with one another. Harvesting by those in rural communities who depend on sale of forest products for their income may conflict with the interests of others in the community who depend on those products for their own use, and the concerns of both groups are likely to conflict with the interests of processing industries which depend upon raw materials from the forest, and of governments which derive revenue from forest land activities, while these in turn can differ from the interests of the broader regional and global constituencies concerned with avoiding adverse climate change or loss of genetic diversity.

Some decisions about the forest resource are made within much broader frameworks. At certain stages in the development process, exploitation of the forest resource could generate capital needed for investment in other growth sectors of the economy, and transfer of land from forestry to agricultural use may be critical in maintaining food supplies. In this situation the issue is thus one of sustaining much wider economic benefits than can be derived just from the forest resource.

With so much unavoidable uncertainty attaching to future needs and values, the concept of sustainable development may more realistically be interpreted as providing a set of guidelines; helping decision makers avoid, where possible, actions which eliminate or drastically reduce future options. This is particularly important when considering the less tangible and uncertain environmental values of the forest. Thus there is widespread agreement among scientists that biological diversity is desirable because it contributes to other goals such as increased resiliency of ecosystems, ecosystem stability, improved habitat, and the prevention of loss of genetic material that could be of value in the future. However, there is much less agreement as to what level or extent of diversity needs to be maintained. Biological diversity may refer to any of the various levels at which life is organized—genetic, species, ecosystem, biome (Hunter 1990). Thus one may be concerned about the potential reduction in genetic diversity within a particular species, the loss of a given species, the destruction of an entire ecosystem, or perhaps degradation or even loss of a major biome in the biosphere. However, it is difficult to place values on a characteristic such as biological diversity, because there is not enough known about any gene, species or ecosystem to estimate its potential ecologic or economic values for any particular level and amount of biological diversity.

Similarly, one of the problems in establishing the relationship between forestry activities and climate change is that the impacts of the latter are regional or even global, whereas development projects are usually locally focused. Each forestry project taken by itself may be an insignificant factor at the global level. However, in aggregate they may play an important role at the global level in the functioning of the biosphere.

Changes such as species extinction and damage to the atmosphere fall in to the category of developments which could have irreversible consequences, at least within any time frame relevant to human planning. Faced with the uncertainty of not knowing what consequences would follow from an irreversible loss of future options, a conservative approach to development is indicated. There is increasing recognition that the objective of preserving irreplaceable resource values may require imposing constraints on the intervention options that may be considered. At a minimum, decisionmakers should ask analysts to identify and describe any potentially irreversible biological consequences that might result from a forestry project, so that value judgements can be made if necessary on the need to circumscribe the range of project options that are considered to be acceptable.

Sustaining the Flows of Benefits from Forestry Projects

Generally, projects are designed to carry out specific activities within a well-defined target area to accomplish specific goals, with specific starting and termination dates. Planners and managers are held accountable for meeting planned goals within the time frame and budget specified. However, although they are framed for operational purposes within a narrow time frame, most projects are initiated in order to bring about changes intended to extend well beyond the lifetime of the project itself. Their role is to stimulate, catalyze or in various ways lay the basis for activities that will become self-sustaining by the time the particular input provided by the project is completed or phased out.

In practice, problems frequently arise which interrupt or distort this process:

- **Continuity.**—Activities initiated by the project cease soon after it terminates, or the benefits from the project's activities are no longer available to the intended beneficiaries, because the resources needed to continue the project initiatives are not available.

- **Diffusion.**—Activities and benefits developed in the project area are not adopted elsewhere, so that it fails to become more than a pilot exercise, because it was too narrowly focused or was located in a situation that was not representative of the population as a whole.

- **Externalities.**—Unforeseen side effects may occur, both inside and outside the project, because the project analysis and design did not identify the full range of impacts that would arise.

The growing concern with the sustainability of development has therefore drawn attention to a number of weaknesses in project design and practice. Some of these reflect too narrow a definition of the boundaries of the activity in question, others inadequacies in the mechanisms for project analysis and design, and others insufficient understanding of the constraints and possibilities of the institutional framework within which projects have to function.

The concept of sustainable development can be summed up as having a number of operational implications for forestry projects (derived mainly from Winpenny 1991):

- avoid damage to critical natural capital, and be wary of starting processes that are irreversible;

- where the resource can be maintained, limit exploitation to sustainable levels; where it is to be run down (e.g., to release land for agriculture), set aside and invest enough of the proceeds to produce a permanent income stream or alternative sources of supply of forest products for those who depend upon the forest;

- where possible, put economic values on social environmental costs and benefits, so that they are taken into account in decisions; and

- ensure to the fullest extent possible that impacts normally treated as externalities are internalized within the design of a project—e.g., by including compensatory measures where necessary, such as planting trees to maintain forest outputs lost.

In the rest of this part of the study we look at some of these issues in more detail. In the next chapter we examine what developmental impacts forestry projects can have, and the lessons that are being learned about the extent to which forestry activities actually deliver these benefits. Chapter 3 reviews the spectrum of institutional issues and mechanisms that need to be considered in planning, implementing and assessing forestry projects.

2

THE NATURE OF FORESTRY PROJECTS

As is shown in figure 2.1, projects in the forest sector have linkages to a wide range of economic activities—industry, energy, agriculture, range, and soil and water conservation among them. We can note two key points about the many different outputs that result:

1. Many of the outputs (goods and services) that forests and trees produce, such as recreation and aesthetics, ecological improvement, soil and water conservation and provision of habitat, are produced by natural forests whether or not foresters practice silviculture, so long as the forest is protected.

2. Many of the outputs do not enter the market place and thus do not have market prices or monetary values associated with them. In some cases, they are not even well-defined and quantified in physical terms; and the means for quantifying them have not been developed. Some outputs have only local impacts; while others also can have global impacts.

Forest sector projects usually involve situations in which the forestry activities also influence broader measures of development, such as employment, allocation of assets, and environmental values. At the same time, most forestry activities will be affected by interventions designed to bring about broader changes, such as agricultural pricing policies and investments in expansion of infrastructure. Any assessment of the potential or actual impacts of a particular forestry project therefore needs to be designed within an analytical framework which is able to identify the more important of these linkages, and define the likely direction of the impact. The main intersectoral policy linkages of concern to forestry are summarized in table 2.1.

Many of these linkages are complex. Some of these complexities arise from special characteristics of forestry projects:

- a long production period, or a long period between investment and output;
- the tree is both the production unit and the product;
- there is great flexibility over the timing of the harvest of a tree, but once it is harvested it takes a long time to rebuild the stock from which future harvests can be taken;
- as a biological production process, it is subject to considerable variation in output, and uncertainty can be substantial; and
- forests, and even individual trees, can have multiple uses; design and assessment of forestry projects is therefore likely to be subject to problems of joint products, conflicting objectives and trade-offs between different uses.

Others of the complexities arise from the multiple roles that forests and forest based activities play in the economy—raw material for industry, inputs into agriculture, source of rural employment and income, environmental conservation, etc. Through these and other linkages forests and forest products constitute important components of food security, energy balances, farming systems, common pool resources and yet other facets of the development process.

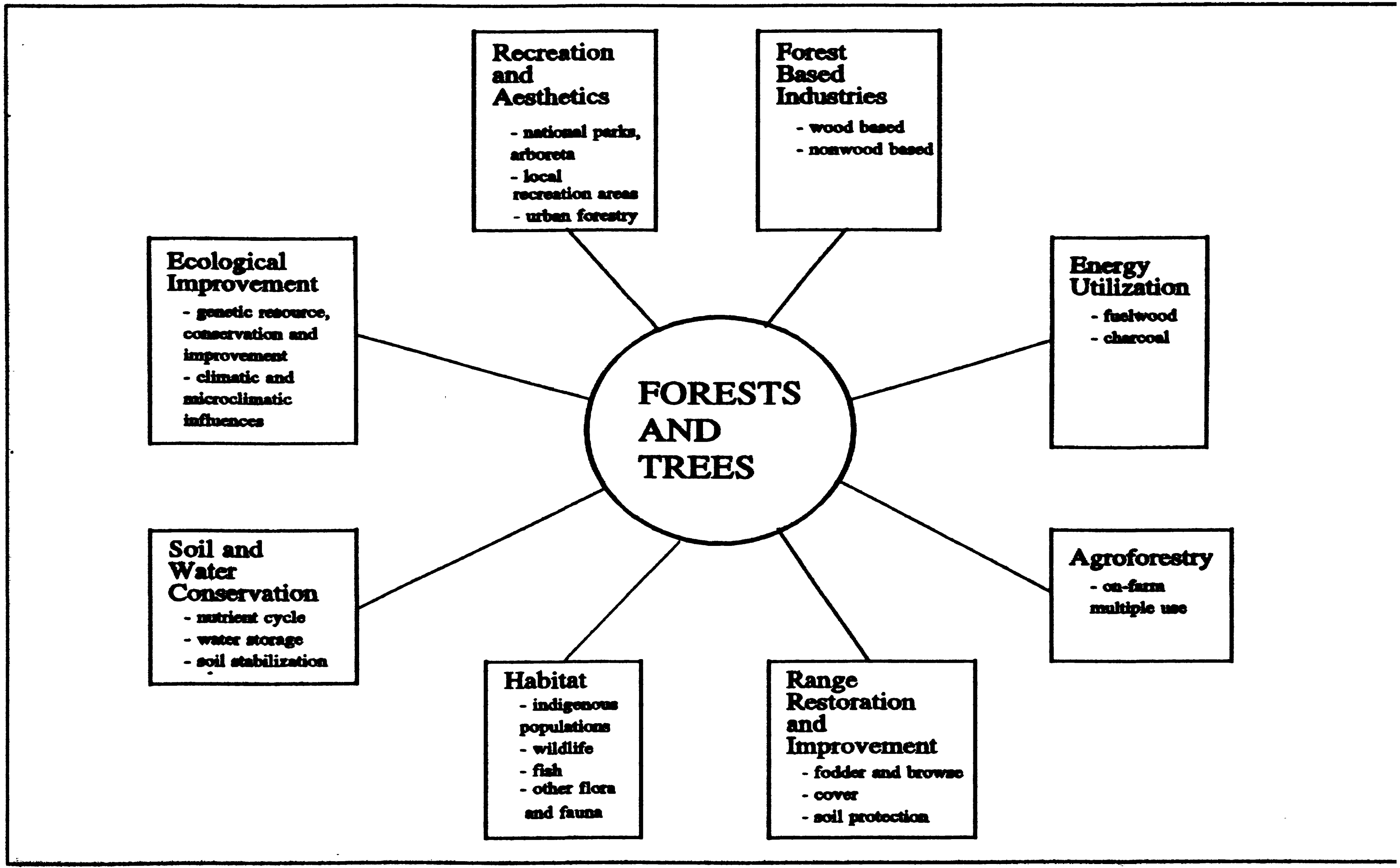


Figure 2.1. The central role of forests in our lives. (Source: Kenya Forestry Research Institute (KEFRI) Newsletter no. 2, May-June, 1987.

Table 2.1. Matrix of intersectoral policy linkages related to forestry.

Policy Area	Component/Instrument	Linkage (via)	Forestry Related Effect
Macro Economic Policies	Monetary and credit policies	Credit allocations and interest rates	Investment capacities in resource management and utilization
	Foreign investment regulations		Reduction or increase of investment in forestry/forest industries
	Trade policies: exchange rates	Valuation of production	Incentive or constraint to production, and export
	Import controls	Reduced imports of equipment and spare parts	Wasteful harvesting and processing
	Export promotion	Subsidies	Over-utilization of selected species
	Fiscal policies	Tax levels and collection reallocation of fiscal revenues to forestry	Rent levels and capacities for reinvestment
Structural Adjustment	Public investment and privatization	Expansion of private sector role	Social and environmental functions
	Pricing policies	Correcting market distortions	Valuation of forest products/services
	Institutional reforms	Reduction in public sector's role and expenditures	Sectoral management and development capacities
Land Distribution and Reservation	Fiscal policies	Taxes and subsidies	Reduction of forest area, standing stock and biodiversity
	Legislation	Land titling and tenure	Security of rights, of sustainability of exploitation of resource
	Land demarcation/privatization	Resource management, access to resource, usage rights	Forest resources management systems. Forest reserves.

Table 2.1. Matrix of intersectoral policy linkages related to forestry (continued).

Policy Area	Component/Instrument	Linkage (via)	Forestry Related Effect
Population	Colonization	Subsidies and infrastructure development; modifications of land uses	Appropriate land use development including forestry or over-exploitation and encroachment
	Sedentarization	same	Sylvopastoral management
Agriculture/Livestock	Pricing policies	Agriculture pricing versus wood pricing	Intensification of agriculture and/or expansion of agriculture on forest lands changing consumer behaviour and impact on value for wild foods
	Subsidized inputs	Mechanization	Expansion of agriculture forest clearing, marginal land cultivation
	Taxes and credit	Expansion of livestock numbers overgrazing	Degradation of tree cover
Energy	Pricing and distribution	Gasoline prices and supplies/mechanization	Land clearing/agriculture expansion
	Alternative fuels	Household/rural industries fuel substitution	Fuelwood and charcoal demand
	Hydroelectricity	Dams	Watershed management
	Energy self-reliance	Encouraging local renewable energy resources	Developing fuelwood production/demand
Infrastructure	Roads and railways	Opening access to new areas	Increased opportunities for forest based income or for encroachment

Source: de Montalembert 1992.

The task of defining these multiple interactions is not an easy one. Nor is it facilitated by the relative neglect until recently of three critical relationships: (1) the importance of natural resources for regional or national economies, (2) environmental and ecological consequences of natural resource development, and (3) the tendency to exploit resources in unsustainable ways in frontier situations (Baum 1990). Neglect is reflected in shortage of information and of analytical experience and results.

The review of linkages that follows is organized under three headings: forestry and industrial development, forestry and rural development, and forestry and environmental sustainability. Each looks at the forms forestry's links with that sector take, the influence of policy and the nature and record of some of the principal types of project intervention.

Forestry and Industrial Development

In most countries a primary role of forests is as a source of raw materials for the industries which produce wood and fibre products for use in the modern, predominantly urban, sector of the economy—lumber for housing, panel products for furniture, paper for printing and writing, etc. These forest industries can form an important part of a country's industrial sector, and of the activities which earn and save foreign exchange through exports and import substitution.

That part of the forest estate which lies in the public sector—as most of it does in the majority of countries—can provide an important source of revenue and capital to governments, through the harvesting or liquidation of the commercially valuable component of the growing stock. This revenue generating objective can conflict with the values derived from the forest through others of the linkages—environmental, non-timber products, etc. Properly managed though, industrial use of the forest can generate positive flows of developmental capital.

Most of the products of the first stage of processing wood—sawnwood, plywood, wood pulp, etc.—are used by other industries, to manufacture furniture, packaging, newsprint, etc. The presence of forests and forest industries can therefore stimulate further industrial activity, employment and income. Their presence as markets for wood raw material can similarly generate jobs and wealth in the forested areas where the wood is produced.

However, this developmental potential does not always materialize. The produce may be exported, so that the value added from further processing accrues overseas. Many of the inputs other than the wood raw material may have to be imported. The quality and dimension specifications imposed by their industrial customers tend to lock most of forest industry into use of processing technologies developed in the industrially advanced countries. These generally are highly automated and capital intensive with little scope for flexibility in factor use; most of the employment created is semiskilled and filled by urban rather than rural labour. Far from creating local wealth, the insertion of a sizeable modern sector industrial plant can, if not done in a way sensitive to the local situation, have negative impacts. An influx of higher paid outsiders places pressures on local services and prices, while the introduction of commercial logging can disrupt existing forest-based activities of critical importance locally.

Lack of markets in the producing country for the full range of outputs from primary processing means that a high proportion of what is used in industrial countries remains unused as "waste" in producing countries, lowering their competitiveness relative to their forest industries in developed countries. Export of logs can prove to be more profitable than export of processed products in these circumstances, but generate minimal value to the country of origin.

Government interventions to stimulate forest processing through subsidies, tax concessions, etc., have consequently been widespread. However, recent work has shown that such policy interventions have frequently distorted investment decisions in unproductive ways. Low royalty rates and export taxes foregone mean that only a fraction of the economic rent is actually captured by most governments, while the excessive profits that accrue to the participating companies encourage exploitation of forest resources in excess of what would otherwise be economically rational, and the high-grading of just the best timber (Repetto 1988). In addition to being inefficient in terms of short-term economic objectives of development, such patterns of use can threaten the longer term sustainability of the management of the underlying resource. The formulation of industrial projects in the forest sector has not always been sufficiently sensitive to these issues.

Where the objective of the project intervention is to create a resource for industry, through afforestation, rather than drawing on an existing resource, other issues can arise. Many forestry projects are so located that they can only dispose of their output to particular forest industries. In such cases it is difficult to take meaningful decisions about the forestry project in isolation from decisions about that industry. It is all too common in practice for plantations to be established without prior determination of what kinds of wood are required, in what locations, and in what quantities. As a consequence great difficulties are encountered later in finding outlets for their output. A recent review of World Bank forest sector operations reported that "almost every project that depended financially on the sale of wood products .... suffered from the lack of a marketing analysis, knowledge of the market, and/or the early attention to the development of markets" (World Bank 1991).

The point made earlier of the importance of ensuring that a project is defined sufficiently broadly to encompass all the related components is therefore very relevant to the successful development of many industrial forestry and forest industry projects. This applies not only to recognition of the vertical linkages outlined above, but also to lateral linkages. Analyses of forest industry projects have tended to treat such associated investments as supporting roads, power, and other services as being outside the boundaries of the project; and to give little if any attention to environmental and social consequences of the industrial activity. Conventional forest industry assessments in the past have consequently often presented only partial pictures of their developmental impacts.

Forestry and Rural Development

The principal linkages with the rural sector are through the contributions made by forest based products, services and activities to the livelihood systems of rural people—contributing to nutrition, income, distribution of assets and wealth, household security, etc. In addition, control and management of tree and forest resources can affect the strength of social structures and local institutions, contributing to their empowerment, decline or fragmentation.

Linkages to the household economy

For most rural people, *foods* derived from forests, or from trees they maintain in their farming system, add variety to diets, improve palatability, and provide essential vitamins, protein and calories (Falconer 1989). In addition to these supplemental roles, forest and farm tree foods are extensively used to help meet dietary shortfalls during particular seasons of the year, helping bridge *hunger periods* when stored food supplies are dwindling and the next harvest is not yet available. The third main role of forest foods in the overall nutritional system is in emergency periods such as floods, droughts, famines and wars. An overview of the linkages between forestry and household food security is provided in figure 2.2.

Where people have had relatively unrestricted access to forests, forest food is often particularly important for poorer groups within the community. They are therefore most likely to be affected by a reduction in the availability of such foods as the forest resource is reduced, degraded or becomes inaccessible to them. The impact of declining consumption of forest food varies; sometimes being offset by improved access to other foods, including purchased foods, though these changes may result in a poorer quality diet. Perhaps the worst impact is that poorer people's food options are being progressively reduced, especially during seasonal and emergency hardship periods (Falconer 1989).

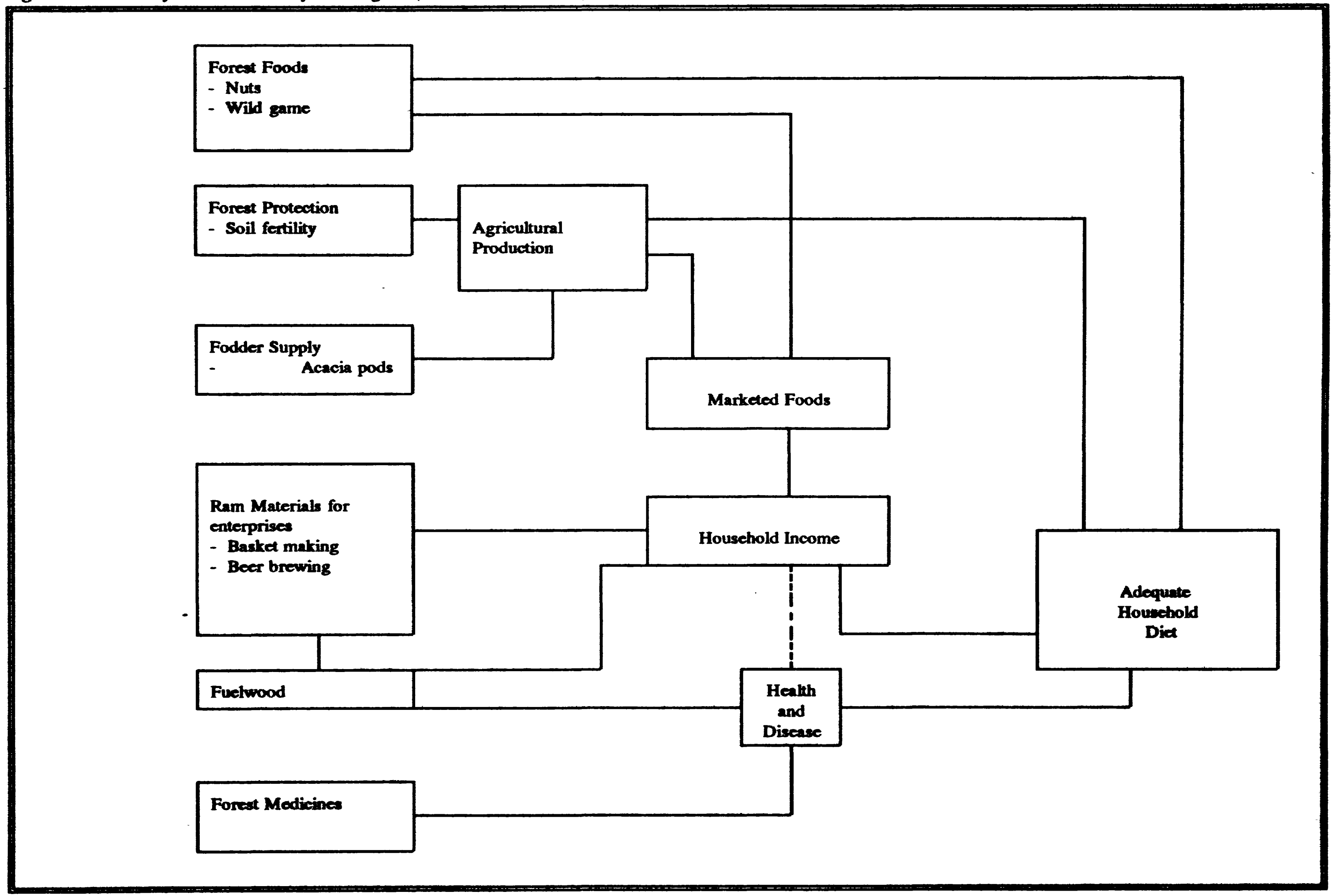
Fuel shortages may influence the food situation. Many foods cannot be digested properly uncooked, and cooking is necessary in order to remove parasites, etc. However, many other factors are associated with changes in dietary customs, which should not be attributed to fuel shortages alone—in many situations the lack of food is so great that fuel shortages play only a minor role in determining diets.

Many agricultural systems continue to depend on tree cover to maintain *soil productivity*. As rotational agricultural systems, employing periods where the land is kept fallow under trees, give way to more continuous cultivation systems, this is achieved by drawing on nearby forests or woodland for biomass to use as green mulch or to burn to provide nutrient-rich ash, or by maintaining some tree cover as intercrops, hedgerows (alley farming) or field boundaries. Increasing pressure on such systems can reach the point where the forest can no longer sustain the repeated off take.

Elsewhere agricultural systems depend on trees to provide *fodder*. In dry land systems, where ploughing and sowing have to be compressed into a short rainy season, the numbers of animals needed are considerably higher than can be sustained from feed produced within the farm system, and can only be maintained if the farmer has access to grazing or fodder off-farm. Forests, woodland and areas of scrub are often the principal complementary source, and arboreal fodder is often the main source of livestock feed in the dry season and in periods of drought. Shortages of fodder widely force the poor to dispose of livestock, so reducing the amount of land they can keep in cultivation.

Forestry activities—logging, planting, etc.—can often be an important source of employment in a given locality. Most forest-based *employment and income*, though, derives from small enterprises operating in the traditional rather than the modern sector. Small forest based gathering and processing enterprises provide one of the largest sources of nonagricultural employment and income to rural people. At a time when rural households are having to look

Figure 2.2. Forestry and food security: Linkages. (From Falconer 1989.)



to non-farm employment and income for a growing share of their total livelihood (Kilby and Liedholm 1986), this forms one of the more important linkages between forestry and livelihood security.

As with forest foods, forest based income and employment opportunities are particularly important to the poor—because of ease of access and very low thresholds of capital and skill needed to enter and engage in most of them. However, returns to labour from many forest-based activities are marginal, and markets for the products may be quite vulnerable to introduced substitutes. Thus, while these activities provide a means of income earning for a large number of rural poor, many may not be sustainable (Falconer and Arnold 1989).

Small enterprises are particularly sensitive to decline and deterioration in the forest resource situation, as they are seldom able to create or conserve their own tree resources for future use. Their forest raw material problems are often worsened by unfavourable harvesting controls, exclusive allocation to large users, complicated licensing or auctioning procedures plus demands for heavy deposits or other insurmountable preconditions, high prices due to state monopolies, and monopoly distribution systems.

Rural production systems

The links summarized above take shape in practice through production of forest products by rural people in conjunction with their agricultural and livestock systems. Production at this level has two main components. One, the incorporation into the farming system of planted and managed trees of value to the farm household. The other, management of neighbouring common pool resources to provide inputs needed in order to complement those available from on-farm resources. Within the total, there is a general trend towards greater reliance on on-farm resources, as expropriation by the state, privatization and encroachment reduce the extent of common resources available for use, and overuse degrades those accessible resources that remain. Nevertheless, the latter often still constitute a major component of the overall agricultural system—filling gaps in the resource and income flows from other resources, and providing complementary inputs often critical to the continued functioning of agricultural and household systems, particularly for the poor.

In addition to government policies which favour private property and government control, increasing population pressure, greater commercialization, and technological change all contribute to breakdown of local management systems, and to the decline in common pool resources. Possibly the most important factor in undermining communal control has been the nearly universal trend towards replacement of local leadership and authority with control by centralized political authorities—"the ever increasing tendency of the state to expropriate the initiatives and activities which belong to people" (Jodha 1991). To date governments and donors have shown little expertise in establishing new organizational arrangements that are effective in enabling local management to function within this new institutional environment.

Recent experience suggests that new or strengthened systems of local management of common pool resources are unlikely to succeed unless the state is prepared to, and can, empower the local controlling institutions. Not much attention has been paid to the acute pressures that such social forestry initiatives place on the institutions concerned. The record suggests that even where government is prepared to do so, the responsible government departments prove reluctant to implement devolution of responsibility to local level, particularly when they perceive that this could threaten their control over a timber resource (Seymour and Rutherford 1990).

The potential for successful local management also increases with the degree to which the nature of the resource is such as to make private or state control less attractive. Some recent interventions have failed in part because they shifted the nature of the resource from low value products of only local interest such as grazing and fuelwood to higher value outputs such as timber which could be profitably privatized. A characteristic of most successful local management is a set of use and protection rules which the user group can control and apply, a requirement not observed in the design of some communal forestry projects.

The balance between supplies from tree stocks off-farm and from managed and planted trees on-farm varies widely with agroecosystem, and the patterns of land use, market demand, population pressure and factor availability and employment. Recently, growth in markets for short rotation wood products have widely stimulated substantial farmer tree growing by farmers. As trees are crops which require only low inputs to establish and maintain, they can be appropriate where labour or capital are constraints.

Most trees on farms serve both to meet household needs and to provide outputs that can be sold. In the first generation of projects designed to stimulate and support private tree growing by farmers, the assumption that farmers plant trees solely to meet subsistence needs was reflected in projects designed as though they were divorced from and immune to economic forces. This was particularly the case with the projects initiated in the late seventies and early eighties in order to increase supplies of fuelwood, in response to what was perceived to be widespread shortages in the subsistence sector.

However, it has become evident that most such interventions failed to reflect how people respond spontaneously to decreases in fuelwood supplies. For those with land the adjustment process may include producing more woody material on their own land. For others, one response is the oft cited one of collecting fuelwood from resources further afield. Others include more careful and economical use of available supplies, and shifts to other readily available biomass fuels such as crop residues and dried dung (Dewees 1989, Leach and Mearns 1988). These options frequently prove to be more efficient for the users than planting and growing trees primarily to produce fuelwood.

Policy interventions have centred on provision of subsidies and other incentives for planting. However, this type of intervention can encourage planting in response to the short term returns from the cash payments provided rather than the longer term returns from investment in trees, leading to undesirable distortions in land use and household security. Another result of this orientation has been failure to match project production to market possibilities, to link producers to markets, to remove restrictions on harvesting and sale of wood products by private producers, or to adjust subsidized prices of fuelwood supplied from state forests. The idea that the shortage of wood was so acute that any supply would be absorbed by the market, leading to projects becoming exclusively supply oriented (World Bank 1991).

The other policy area which has obvious connotations for decisions about the growing of a relatively long term crop such as trees is that of security of tenure. Concern is often expressed that this receives insufficient attention in forestry project design and assessment. However, the need to increase security of tenure in order to encourage tree growing may occur less often than tends to be assumed. Where existing tenure already provides the necessary assurances of returns to capital and labour, tree growing decisions are determined more by considerations of profitability than tenure. The focus could often better be placed on adapting interventions to the existing tenure situation rather than on attempting to change it (Cook and Grut 1989, Shepherd 1990).

A major reason for mismatches between intervention and needs, which have been frequent in the early years of farm forestry and agroforestry, has been poor communication with farmers and their families due to shortages of people trained in communication and extension skills. An institutional infrastructure of extension and related services to support tree growing often has to be built up. The fact that both forestry and agriculture departments have responsibilities in this area can complicate the process of doing so. Weaknesses in support to farmers also often reflect poor choice of species, and insufficient knowledge of performance and yields.

Forestry and Environmental Sustainability

The main linkages between forests and environmental values are well-known. In brief, forest cover affects the nutrient content and water retention capacity of soils, influencing rates of soil erosion and water run-off; consequently, forests affect downstream flooding, sedimentation, etc. Tree cover can also protect land and crops against wind and sun. On a macro scale forests are of importance in terms of maintaining biodiversity, the storage of atmospheric carbon, and changes in climatic moisture distribution.

Designing and assessing forestry projects to take account of environmental objectives and consequences often requires defining project boundaries more broadly than is conventionally done. As was noted earlier, even direct impacts such as air and water pollution from industrial processing plants, or soil loss or deterioration accompanying logging or change in land use, are commonly excluded from a project's analysis. Longer term resource use issues are even less likely to be considered.

One reason for ignoring such linkages has been that the negative environmental impacts occur outside the physical boundaries of the project. Project planning may therefore need to expand its spatial as well as subject matter boundaries if it is to capture such interrelationships. Progress in planning such projects is often constrained by data and assessment problems arising from the complexity of the resulting expanded sets of interrelated inputs, outputs and impacts.

In watershed management projects, for example, protection activities upstream can be widely separated spatially from their impacts downstream, complicating the task of tracing cause and effect and of gathering the data necessary for analysis. Even within an upland area, actions on-site typically have impacts off-site, so that costs and benefits may be spatially separated and involve different participants. Moreover, the numbers of people involved can be very large, and can exhibit many different ethnic, social and economic profiles. Many of the physical relationships are imperfectly understood. In addition, some of the more important outputs and impacts are not bought and sold, and consequently do not have market values, so that they can be given economic values only indirectly, if at all. At the same time, protection has to be balanced against other project objectives, such as production and the distributional impacts on different target groups (Gregersen et al. 1988, Dixon et al. 1989).

A third dimension to setting boundaries to project planning in order to satisfactorily account for environmental aspects of development can arise where a forestry project provides environmental benefits which help offset environmental costs elsewhere. For example, it has been argued that the beneficial effects on site productivity of *Acacia senegal* grown by farmers in Sudan for gum arabic, fuelwood and fodder, help compensate for the damage to the gum belt and neighbouring desert soils by mechanized agriculture and overcropping. This compensating benefit should therefore be taken into account in assessing gum planting projects (Barbier 1989).

The difficulty of quantifying many environmental values poses additional difficulties. As it is not possible to place values on biological diversity, the trade-off between conservation and the economic activities that would be eliminated or curbed in favour of reserves, buffer zones, etc., cannot be assessed in terms of economic values. The issues related to the task of minimizing global warming present similar problems. Forestry activities that have been proposed include establishing additional tree cover to capture and store atmospheric carbon to offset carbon dioxide emissions elsewhere, and measures to reduce the release through deforestation and burning of carbon stored in forests. Ingenious systems of carbon *taxes* and *subsidies* have been postulated to encourage and reward beneficial activities such as afforestation, and penalize ones like clearance and burning that have negative carbon dioxide effects. However, major problems arise in establishing the value that should be attached to carbon storage (and even greater problems in working out how to avoid the disruptions to economic activities in the forest sector that such massive changes to the supply situation could cause).

Many activities with environmental consequences are also shaped by policy interventions. The pressures which force farmers to migrate onto forest lands which cannot sustain agriculture often derive from unequal distribution of land, rooted in historical patterns of land settlement and development of cash crops, and by agricultural pricing and tenure policies and practices. More directly, rights to land are widely created by clearing it and putting it to agricultural use. Subsidies, tax incentives, and other measures induce the extension of forest clearance to areas and usages which without such intervention would not be financially profitable to the practitioners even in the short run (Repetto 1988). Dry land environments have been degraded by overuse stimulated by policies to settle pastoral populations and to expand rainfed agriculture, and a variety of pricing, subsidy and tax policies which encouraged livestock expansion (Montalembert 1991). Progress in developing projects which pursue environmental sustainability is therefore particularly dependent on there being an appropriate policy environment.

3

THE INSTITUTIONAL CONTEXT FOR FORESTRY PROJECTS

The present chapter focuses on the institutional context of successful design and implementation of forestry projects, and more specifically on those issues which influence the effectiveness and efficiency of project development and implementation. Furthermore, projects function effectively only if there is harmony or coherence between institutions of various types and at different levels, between the formal rules of the government services and the informal ones of local communities. Such an understanding is necessary in order to properly develop the concepts of impact assessment.

Institutions are defined as the sets of rules by which societies live. They include the formal rules established by law and official regulations and the informal ones established at the initiative of people in particular by religious and social groups, expressing the wishes and needs of their constituents. Organizations are established to help (1) focus the development of rules, (2) formalize them through codification, legalization, or social contract, and (3) enforce and implement them through incentives, persuasion or force. There are different types (public, private, nongovernmental) and levels (national, provincial, local) of institutions.

The institutional context or framework within which forestry projects are undertaken influences significantly the types, magnitudes and extent of impacts from such projects. In turn, forestry projects can over time have noticeable impacts on the evolution of institutions associated with the sector. For example, they can enable local solutions to influence what happens at the national level in the forest sector.

The success or failure of projects and the process by which they are identified, designed, chosen and implemented, thus depends to a great extent on the nature of the institutional context, and whether the relevant institutions allow the recognition of diverse interests and legitimize the participation of all major actors in the planning, implementation, management and evaluation of projects, whether they deal adequately with interproject and intersectoral aspects of project development, and whether they successfully integrate project and policy linkages and interventions.

The importance of institutions in shaping the forestry sector in a country cannot be overstressed. Thus, FAO's *State of Food and Agriculture Report* stated back in 1969 that the principal reason the forest sector had not made its expected contribution to economic development was institutional weaknesses. The major weaknesses identified included: inadequate training to equip forestry personnel for their new tasks; the obsolescence of forest administrative machinery; the inappropriate structures of many forest organizations; and the frequent irrelevance of the legal provisions under which the sector operated (FAO 1969, King 1972).

Several recent World Bank reports (OED's review on sustainability, the Sfeir Younis report on forestry projects and other studies) have concluded that: **the nature and structure of the existing institutional frameworks are critical determinants of the extent, magnitude and sustainability of forestry project impacts.** Furthermore in the 1990s and beyond many developing countries will be faced with difficult choices. On the one hand they will have to deal with the problems of diminishing areas of natural forests, declining timber and fuelwood supplies, and constant or possible decline (in real terms) of financial and human resources available to the public sector. On the other hand forestry institutions will have to cope with increasing political and public pressure to do more in basics (e.g. protection, management, harvesting of forests) and in new agenda items (e.g. biodiversity, conservation, etc.). Thus institutional considerations are of direct concern in this discussion.

A number of common weaknesses related to institutional constraints at various levels need to be considered in estimating future project impacts and the sustainability of project benefits. The more common of these can be summarized as follows (Gittinger 1982, Baum and Tolbert 1985):

- Lack of continuity, because of changes in government, policy, budget or personnel. A particular weakness is failure to make sufficient allowance for recurrent costs, or to avoid delays in disbursement to projects.

- Overambitious: expectations of success are unrealistic; resources are spread too thinly; insufficient allowance is made for the time it takes to do everything; new projects are started at the expense of completing or maintaining existing projects.

- Costs are consistently underestimated and benefits overestimated—the costs of essential support components such as training and extension are left out; negative side effects such as pollution are overlooked or not accounted for; etc.

- Projects are too large, subsuming component activities which should better be assessed separately, or not large enough, so that critical linkages are excluded (e.g., production forestry projects which fail to examine the needs of the user industries).

- The practice of creating a separate unit to manage a project defeats continuity and sustainability because, though it may temporarily insulate the project from some of the problems of the government bureaucracy, it incorporates salaries and other measures which cannot be maintained beyond the lifetime of the project.

- The tendency for both government and donor programme targets and monitoring procedures to give greater weight to delivery than to performance and to attach more importance to efficiency than to effectiveness often hides project and institutional weaknesses.

- Rural development projects tend to suffer from failure to involve participants until after the design is in place, so that project designs all too often fail to accurately reflect their concerns and possibilities.

It is quite evident from past experience, that many of these institutional weaknesses can have a direct impact on project outcomes and thus on the impacts of projects in terms of national, regional and local objectives.

As indicated in chapters 1 and 2, forestry projects are characterized by increasing complexity, not only in terms of the array of objectives and outputs considered, but also in terms of the involvement of groups other than traditional forest services and commercial users of the forest. Thus, we find increasing involvement of local populations and NGO's, coupled with increasing involvement of the global environmental community in what used to be regarded as local forestry problems and projects. Further complexity is added by the growing interactions between forestry and other sectors and the institutional linkages that are created, e.g., between forestry and agriculture, and forestry and energy and transportation sectors, as discussed in the previous chapter.

In essence, three broad sets of concerns exist at the management level: revenue generation, management to meet local needs, and environmental benefits. As earlier chapters make abundantly clear, forestry has evolved from tree management to management of a complex resource system, one that involves direct linkages with agriculture, energy, and other sectors. The major challenge for forestry related institutions is how to address the diversity and complexities of forest management for multiple uses and multiple users for which few proven implementation strategies are presently available.

Government forestry institutions and the policy framework for forest development and utilization in most developing countries were not established to address the complex and difficult range of tasks demanded by forestry programmes. In many countries, forest departments are short of funds and of the range of technical specialists or skills to cope with traditional responsibilities e.g. planning, protection, management of forest resources and to deal with the "new agenda" items e.g. non-timber forest products, biodiversity, agroforestry. Often the linkages between forest departments and related technical agencies are not well-established, and intersectoral programmes are difficult to implement. Skills needed to interact with local people and encourage them to participate in forest development are weak. The ground rules and working relationships to expand the roles of the private sector or local groups and organizations are usually not well established. Systematic efforts to understand the local institutional set-up and to assess the need to match national level rules and regulations with local level responses to evolving local situations are usually differed.

On the policy side, there also are many concerns. First there are many situations of conflict between sustainable economic development and the preservation of social equity (Wiens 1992), between forestry policy and fundamental social goals, between public goals and private interests. Second forest legislation and policies are not always consistent with policies and legislation for other sectors, particularly industrial and agricultural development policies, environmental policies, and land legislation. For example, national priorities for achieving food security, or for maintaining affordable prices for particular goods, have undermined the incentives and economic efficiency of forest development. Stumpage fees for timber are too low and the economic values of non-timber forest products and environmental services are ignored thus unwittingly leading to discouraging forest conservation and management. Many countries have introduced numerous protective regulations and subsidies designed to preserve natural forest resources or encourage tree planting that in the aggregate generate negative effects on the forestry situation and fail to meet local expectations. In addition, policy-makers usually find it difficult to consider the real costs of soil erosion, nutrient and resource mining, deforestation, forest degradation, or marine pollution or to accurately weigh the benefits of corrective actions (FAO 1989). At the same time, advances are being made in this area (cf. Repetto 1992).

A number of countries have introduced institutional changes to address these recognized problems. Solutions have often been too partial to address the underlying problems or too ambitious without their feasibility and likely impacts having been adequately assessed. One solution is to transfer more responsibilities to local organizations and the private sector. This is a new area for government agencies in general, and progress has been slow. There begins to be a solid understanding of the conditions under which local institutional involvement in forestry can be successful. There is increasing awareness that sustainable systems of forestry and agroforestry management and utilization often exist under customary regulations prior to Government or project intervention. Effective systems consist of use rights and agreed rules enforced by local groups to manage their natural resources. In some cases they are formally established as organizational structures. Much remains to be learnt about ways and means of supporting and strengthening the self-regulating and -organizing capabilities of local groups to encourage collective forestry action and initiative and simultaneously to enhance higher productivity.

NGOs can play key roles in mobilizing local people for forest management and development, in training local people and training foresters in participatory approaches. There is still uncertainty as to the desirable scope of NGO involvement, the extent to which NGOs with community mobilization skills can expand their coverage to forestry initiatives, and how to establish the necessary linkages between NGOs and forestry departments and local government institutions.

In general, the constraints facing forestry bureaucracies are often linked to broader administrative problems in the government. Table 3.1 itemizes a number of generic institutional problems countries face in strengthening public institutions for today's forestry and preparing them to work in partnership with local people and the private sector.

Dealing With the Institutional Issues

To deal with these increasingly complex issues, the institutional framework needs to evolve in such a way that it facilitates:

- *effective response to the changing nature and composition of the political constituency* for forestry, and the means for reconciling tensions between environment and development—between policing and protecting forests and developing them for the production of products;

- *appropriate placement of forestry and agroforestry activities within the larger governmental and nongovernmental organizational structure* of the country; appropriate placement implies that the expanding concerns for the sector are effectively dealt with, both by public and private institutions, and at the local, regional and national levels. Some specific issues which need to be considered here include how to deal effectively with the complexity of the institutional issues associated with (1) tenure and legal rights, related to both land and to trees, (2) open access and common property resources, and (3) recognition of rights of local users and sharing responsibilities with local groups and the private individuals; and

- *project planning and implementation mechanisms that can be used effectively within the existing institutional structures and constraints* to deal with: (1) increasingly complex intersectoral issues and conflicts; (2) conflicts between local and higher level interests and

Table 3.1. A problem list of forestry related institutional constraints.

General to All Bureaucracies	Specific to Forestry Institutions
Overcentralization of bureaucracy undertaking development	Historical trend to accumulate more power and control over forest resources as doers through territorial approaches rather than working as facilitator in partnership with local users
Lack of preconditions for participatory approaches	Poor training of staff to work with people; all forest agency staff are foresters rather than range of specializations working in interdisciplinary teams on socioeconomic and technical issues
Lack of specialization in career streams	Lack of specialization in career streams within forestry for innovative areas, such as community forestry, silvo-pasture development, joint forest management with local people, agroforestry, enterprise development, extension
Lack of flexibility in staffing depending on responsibilities	Orientation to timber and major commercial products rather than on multiple uses and multiple users including the wide variety of products and processing technologies and scales
Lack of criteria and flexibility to transfer responsibility to local people, private sector, NGOs	Poor attention to local control and management capabilities for common property resource utilization, lack of attention to market and income generation potential; lack of linkages to private sector
Narrow planning within sector when many issues such as land use are cross-sectoral and solutions require cross-sectoral action	Forests are more generally perceived as a land reserve or as residual use of land thus leading to a policy and legal framework that is a disincentive for forestry development; lack of dialogue between forestry and agriculture and other sectors, inability to deal with land tenure and use issues; absence of incentives for extracting economic rents
Agencies responsibility for cross-cutting areas are not properly coordinated or staffed for issues	Staff performance incentives based on physical targets rather than demand-driven accomplishments or sustainable forestry development
Local level administrations not geared to undertake development responsibilities	Planning system too complicated for participatory involvement of nontechnical foresters—need for simpler models for forestry, more flexible timeframe for forestry operations,
Inefficient and untimely flow of funds for programmes	Longer gestation for forestry programmes create funding problems. Time frame for meeting targets too inflexible for participatory tasks
Reluctance to transfer responsibilities to local organizations and private sector	Poor mechanisms to involve or work with private sector, local communities and user groups, NGOs

objectives; and (3) implementation of activities in the field that conform to the norms established by an increasingly complex set of policies associated with environment and development.

Each of these three requirements is discussed below, together with the issue areas that are particularly relevant in terms of influencing forestry project impacts.

Expanding Political Constituencies for Forestry to Reconcile Environment and Development

In most countries there is a changing and growing constituency in the forestry sector. There is also a growing number of public and private groups and formal organizations active and often times competing in forestry-related activities. Such competition rather than the search for collaboration can, of course, lead to both positive and negative results.

On the positive side, a World Bank study on institutional strengthening found that most organizations that were exposed to some form of competition had a higher level of institutional performance than those that were not (Israel 1987). The definition of competition used was expanded beyond the traditional economic one of external competition from others attempting to provide the same or similar goods or services to include:

- external pressures derived from clients, beneficiaries, and suppliers;
- external pressures derived from the political establishment or from the controlling or regulatory agencies; and
- internal competition among different people or units within an institution.

This finding supports the importance of building a constituency for an organization and its activities, encouraging participation, and underscoring the agendas of the different interest groups. Equally, it underscores the importance of institutional linkages, both horizontal and vertical.

In the case of forestry, the constituency is presently in a state of flux. Realizing the complexity of the tasks, forestry departments are beginning to share management and control with other government departments, private sector, local organizations and interest groups and NGOs. Major commercial interests have always been rather well-represented but now feel unduly criticized by the environmental lobby, both national and international; privatization increases the influence of market forces on forestry. International and national environmental organizations are becoming more active participants in overall forestry activities, being concerned about a number of forest related issues—biodiversity, carbon sink functions, indigenous population rights, and so forth. This state of flux is not unique to forestry. However, because of the strong and increasing interest in environmental and social issues, the complexities and changes are given greater recognition.

Placement of Forestry in an Organizational Context

The institutional framework for forestry must address the multiple ecological, economic and social roles of forests and trees and the combination of public goods and intangible values and market products. It must increasingly cope not only with state property and private property, but also with all of the gradations of open access and common property resources which lie in between. This requires a wide mix of institutions and linkages between such. It requires organizations and laws that can deal with issues of sustainable development, or the delicate balance between protecting the resource and providing opportunities to use the resource, especially for the poor. Those functions that are to be performed by public administrations, such as regulatory, control, information collection and analysis functions should be clearly spelt out.

Legislation, regulations, and local institutional mechanisms are needed to define which areas of the forest would best be leased to or left under local groups' management and which should remain under the control of government authorities. The critical issue in the recognition of local control over the resource use is whether the local institutional set-up can internalize the vested interests of local populations which encourage collective action. At the same time government policies and programmes will need to recognize use rules which are compatible with local needs and capacities.

The question of linkages between the diversity of interest groups and various levels of institutional set-ups is a critical one for policy-makers to consider and resolve. The trend towards expanded involvement of various groups in the sector—and the consequent expanded constituency that has to be dealt with—increases the organizational complexity of forestry activities.

Table 3.2 outlines a number of the above mentioned institutional/organizational issues and the comparative advantages and disadvantages of different institutional/ organizational options. The following three subsections look at specific issues related to public sector institutional developments, the role of the private sector and local development and participation in the management and evolution of forestry institutions.

Public sector institutional development

The organization of the public sector forestry institutions and their location in government structures have a significant influence on the types of forestry and agroforestry projects that are undertaken and, therefore, influence the type and magnitude of project impacts in the sector. This has important implications in terms of the dynamics of forestry development and use of the sector's resources in a given country and the nature of the benefits or impacts sought from the sector.

Public sector responsibility for forestry is commonly entrusted to one of four types of national agencies. These are (1) a parastatal body, (2) a department within a ministry of agriculture, (3) a separate ministry of forestry or natural resources, or a (4) ministry of environment and natural resources. Complicating these arrangements in most countries is the fact that, irrespective of where the main responsibility for forests is placed, the various functions may be split between two or more entities. It is still rather common for the forest department to be divided into a *forest authority* responsible for advising the government on forest policy and administering its implementation, and a *state forest enterprise*, often a parastatal, responsible for managing the state forests and marketing the products (Velay 1976). Nevertheless, the conventional wisdom was that many countries, particularly in the developing world, should combine, in the interests of economy, the two functions in a more holistic approach to forest management and conservation (Hummel 1984).

The creation of a parastatal often reflected the distribution of resources within a country, particularly when a small minority—either economic, social, or ethnic—holds an inordinate amount of power. By removing control of forest resources from popular pressure, such groups are allowed to extract the wealth, virtually unaccountable and often at great cost to the natural resource base (Honadle 1989). This results in a narrow distribution of the positive impacts of forestry projects. More recently structural adjustment programmes and macroeconomic reforms are giving a much larger share of forest management responsibilities to the private sector and to local communities.

When placed within a ministry of agriculture, forestry must usually play a subordinate role. This has led to several widespread problems (Miranda et al. 1990). First, since agriculture—in marked contrast to forestry—involves a very large and often powerful clientele, ministers often put agriculture far ahead of forestry. Second, the financial connection between timber proceeds and agriculture is sometimes quite direct. Adeyoju (1976) notes that in many African countries agricultural extension was financed by timber harvesting and concession proceeds when the forestry departments were under the ministries of agriculture. Third, when placed under the jurisdiction of some larger ministry, the forestry department often loses the battle for larger budgetary allocations. In these cases, the impacts of forestry projects that are of interest to decision-makers tend to be those associated with agricultural populations, rather than the landless poor. Agricultural sustainability impacts (e.g., through introduction of agroforestry technologies) may take on particular importance along with efficiency impacts.

The third option, the creation of a separate ministry, does have the advantage of providing foresters with some status and independence, since they are no longer second-class citizens in their own organization. However, this alternative tends to isolate forestry from its rural development context and to divorce it from other institutions active in natural resource management and other sectors of the economy. Intersectoral impacts tend to be of less interest. If the make-up of the forestry ministry staff consists mainly of traditional foresters, the impacts that will dominate the decision-maker's concern will be those associated with efficiency in management and in wood production. Technical or resource sustainability impacts of forestry projects also may likely be of special interest to the ministry. Impacts on rural people and particularly on the most vulnerable (distributional impacts) will tend to be of less concern.

The fourth institutional option—placement within a ministry of environment and natural resources-tends to emphasize the conservation objectives. The focus on conservation and on nature protection can have positive effects on dealing in a more holistic sense with land use issues and with ecosystem impacts of alternative investments. But forestry project impacts will tend to be looked at in ecological perspective rather than rural development, such as soil and water conservation, wildlife, and other natural resource areas of concern. Impacts on the economy and on rural people will receive less attention.

There are, of course, other variations on the above models. For example, the Republic of South Korea started its ambitious fuelwood/community forestry programme in the late sixties and moved forestry from the Ministry of Agriculture to the Ministry of Home Affairs. This was done primarily because the latter ministry controlled local police and there was a general feeling that strong policing action would be needed in the early stages of the forestry

Table 3.2. Institutional issues and options.

ISSUE	INSTITUTIONAL CHANGE	ADVANTAGES	DISADVANTAGES	EXAMPLES
Forest agency not geared to new specialities--pasture development, agroforestry, etc.	Increase linkages among govt. agencies concerned with forestry: forestry, rural dev. livestock, agriculture, industry	Expands on existing specialties of different technical agencies	Coordination may not be forthcoming; Other agency may not have incentives to provide needed support or expertise	
	Broaden range of specialities in forest service	Administratively more simple to create links within a single agency	Creates a larger and more complicated bureaucracy; Specialists may not be available in country; Lack of career paths and professional development opportunities may be a problem	
Extension service not geared to special interest groups in population	Increase number of women foresters	Increases capacity of forest department to address gender concerns and reach women clients in population	Increased fiscal responsibilities of government if overall fiscal strategy is to reduce government machinery	Suggest that incremental staff be mostly women or of specialties not currently found in organization; replace retiring staff with women
	Train foresters of both sexes to understand gender dimensions of forest development	No budget increases for recruiting new staff; Male staff also impart same message as women staff	May not work in societies where men and women have very distinct and separated responsibilities and activities;	May be excuse to not increase women forestry staff and professionals when this is possible and desirable
	Sensitize local people through PAME/RRA[2] to gender constraints and impact on environment, quality of life and economic well-being	Increases local demand for extension services; Channels resources more directly to perceived needs	Requires training NGO or forestry staff to carry out PAME/RRA; takes time from other forest staff assigned activities	Slow implementation of activities initially on but leads to much more sustainability of activities
Forest staff have poor incentives to undertake new tasks	Introduce specialization in forest career stream, i.e. research, extension, marketing, non timber forest products, harvesting	Provides career development incentives to stay in specialty	Requires national policy decision to allow bureaucracy to introduce changes; May increase staff size overall	Where resource extraction drives agency, strong resistance to this likely
	increase amount and breadth of training offered to foresters and local people: (a) new technical specialties (b) participatory approaches (c) institutional strengthening	Essential to prepare staff for new tasks and devolve responsibility to people as they gain experience and technical knowledge	May not be appropriate institutions in country with skills to design and carry out training	

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[2] Participatory Assessment Monitoring and Evaluation (PAME); Rapid Rural Appraisal (RRA)

Table 3.2. Institutional issues and options (continued)

ISSUE	INSTITUTIONAL CHANGE	ADVANTAGES	DISADVANTAGES	EXAMPLES
Government overstretched and still can't effect programmes	Contract out some of Forestry Department's current responsibilities	Able to get specialized people to deliver important services, allowing Forestry Department to focus on priority areas	Forestry Department bureaucracy may lack capacity to monitor implementation of contract services, check for quality control	GIS, some research inspection of logging
	Devolve forest management to local institutions and population	More efficient use of government staff time; Local people have more stake in resource; Generate more income	Tenure rights may not be flexible in legal or policy framework, so people cannot really take over management	FD must provide adequate support to local people so their control and mandate is clear to outsiders putting pressure on resource
	Establish links between forest departments and NGOs ; increase NGO responsibility	Reduce forest staff burdens; capitalize on comparative advantage of NGOs in working with local people	Practical criteria may not be approved for working with NGOs within bureaucratic system; NGOs may be poorly chosen or adequately strengthened for required role	
Incentives for people weak	Remove restrictions on private forestry initiatives (inappropriate regulations or subsidies)	Introduces more efficiency and sustainability long-term	Requires political and bureaucratic commitment to changes; Interim adjustment may be difficult	
	Increase rights of people to forest products and their utilization	Reduces state budgets and allows redirection of scarce resource to other activities; increases incentives for management; more likelihood of long-term sustainability	Land reform changes are often difficult to approve and implement; Local institutional capacity must also be built up	Tendency is to expect too much sophistication from new local institutions or to give too small or unproductive a resource to people
	Establish multi-disciplinary working groups between agencies and with private sector	Encourages new approaches to problems and links between public sector and NGOs, people, etc.	May be paper structures rather than effective groups; If no mechanisms built into forest department to act on decisions, will not work; may not have enough local-level inputs	Depends on reorientation and training of participants from various sectors
Technical knowledge too commercially focused on traditional products	Change focus of forest research to devise forestry models that maximize NTFP as well as wood or timber	Increases viability of natural forest management and equity flow of products to population	May inflate budgetary expenditures; If poor understanding of production, extraction or marketing potential, may promote wrong products	

programme to protect the newly established village plantations and other tree planting activity. The success of the Korea programme was due to a number of interrelated institutional and technical factors (see box 3.1).

Placement of forestry within the national organizational structure can have a significant influence on how projects induce development, how other sectors are affected, and, most importantly, how they affect the welfare of rural people. Even within the sector, different functions need to be considered in terms of different sets of institutions. For example, policy-makers need to consider what level of research capacity should be retained by government forest organizations vs. universities and the private sector. The same sets of questions can be applied to such functions as marketing, information and extension services, and forestry industry development functions.

Box 3.1. Factors responsible for success of the Republic of South Korea's Fuelwood Program.

It is obviously not possible to identify all the factors responsible for the successful implementation of the Korean community forestry program. Many of them are related to subtle changes in moods, attitudes, and emphasis in the implementation of policies at the village level. However, based on the present analysis, the following factors stand out as being significant:

a) *A broad-based approach* was used (through the Saemaul Undong) to achieve improvements in a great number of conditions directly influencing rural welfare.
b) *An incremental or a step by step approach* was used which put emphasis on results rather than abstract ideals. Realistic village potentials were stressed in each stage of development.
c) There was a *blending of top-down and bottom-up planning* and emphasis was placed on *cooperative action between government and private citizens* (e.g., through the relationship between the OOF, local forest administration and the VFA system).
d) There was a recognition that longer term goals could not be achieved without also putting *emphasis on short-term gains in income and welfare*.
e) *Emphasis was put on research and development of appropriate technology.*
f) *Emphasis was put on provision of adequate technical assistance and extension of appropriate technology to users.*
g) *Thorough logistical planning was used to assure timely delivery of needed materials and technical services.*
h) *Appropriate and timely financial subsidies and access to resources* were given to villages. Such aid was tied to a self-help attitude to prevent problems of increased village dependence on outside support. Among other things, emphasis was placed on *reinvestment of some of the gains* from projects.
i) *Strong, clear laws and regulations* were developed to define appropriate responsibilities needed to achieve results. It was recognized that results could only be achieved if *villagers themselves participated in policing activities* and exerted peer group pressure to prevent abuse of resources.

Village level cooperation was achieved first through strong government pressure and the use of incentives. As the positive results of such activities became apparent to villagers, the cooperative spirit took hold and little urging was needed to extend local efforts and to spread such efforts from village to village.

Source: Gregersen (1982).

The role of the private sector

In a number of countries, the private sector can play a greater role in forestry than have been allowed until now. This is also in line with structural adjustment programmes and greater orientation of macroeconomic policies toward the market which are increasing the role of the private sector in economic development. In many former centrally planned countries the transition to a market economy has led to a general trend for the private sector to increase its importance as a partner in forestry development. However, in most countries concern for the long-term sustainability of forest resources and related environmental services is reflected in reluctance to privatize public lands on which forests grow. The tendency is to privatize forestry operations on those lands such as harvesting, afforestation and reafforestation and other silvicultural operations. Contractual arrangements fix the conditions under which the forest is managed, its sustainability safeguarded and revenues distributed. Privatization of forest industries and of forest products marketing organizations do not raise similar concerns and the competitive market context stimulates higher productivity and more effective management.

Projects that promote market approaches to forestry development should not raise major conceptual and policy problems when they deal with marketable commodities. However special attention will be needed when dealing with goods and services which are not traded, or which are related to public services such as conservation and protection, whose values are difficult to assess, so that they are not adequately reflected in decisions determined by market forces. Examples of such goods and services are biodiversity, wildlife habitat, microclimate, and water supply. Hence in projects related to the management and utilization of forests on public lands the institutional arrangements under which private enterprises are to operate will require careful examination. In relation to communal and private forests, projects are likely to address the needs to strengthen the technical and managerial capacities of the owners to sustainably and comprehensively manage the resource.

The other important concern relates to the extent to which the focus on private forestry could conflict with community forestry and the new dimension of people's participation. Undoubtedly the impact of private business development on local people must be assessed with care particularly in the extent to which vulnerable groups depend on forests for food and income. Privatization of traditionally managed common lands may profoundly affect the access of local groups to the supply of important goods such as food, fodder or fuel. On the other hand small scale forest based enterprises are typical examples of small but important private business which in some countries constitute a major source of off-farm employment. It is therefore essential to assess the impact of private business development in forestry on local communities in order to ascertain that those who are more dependent on the forest resource or on activities related to access to its products are not marginalized but actually benefit from the new opportunities.

Local Institutional Development and Participation

The current debate on how to involve local institutions and NGOs in forest development pays much more attention than in the past to the objectives underlying the involvement of such institutions. First, local level institutions have an important role to play in increasing the level of participation by target groups, and moving management responsibility closer to the resource base. Second, local institutions often encourage new directions in forest development, directions that are less likely to be identified by government agencies.

Involving local people's institutions, mobilizing their indigenous knowledge of forest and tree resource and giving precedence to their perspective on forestry problems, has implications in terms of empowerment of local people. Encouraging them through their institutions to initiate as well as undertake forestry activities leads to the possibility of their redefining the scope and goals of those activities and the long-term use of the forest resource being developed. This, of course, influences directly the nature and distribution of the impacts from forestry project investments.

This in turn also has implications for the kind of support that public administrations and technical forest agencies must provide. On the one hand, agencies must change the skill base of their personnel to provide new services: training of local people in new technologies and resource management as well as organizational and decision-making skills. On the other, the government must identify and correct policies and regulations that undermine the freedom and incentives of local people and local institutions to direct and undertake activities. One area is rules and regulations regarding tree growing, forest management, and product extraction and use. Another area is legislation underlying land and forest tenure. A third regards channelling of financial resources to governmental and nongovernmental bodies and local people. A fourth relates to giving people the ability to organize and then to recognize those organizations.

There is only a spotty understanding of the mechanisms and conditions which result in effective institutional development for forest management, development, and use. In principle that local institutions must have a dynamic rather than passive relationship with forest resource management—initiating activities and shaping directions and decisions rather than simply implementing government objectives and programmes.

The development of dynamic local institutions is often risky—local institutions may prove unable to undertake the activities or develop the organizational mechanism to sustain the activities. In addition, forestry activities can generate other political forces out of tenure or resource use rights issues that run counter to a government's desired objectives and goals, also posing a threat to the existing local power structure.

In forestry there are a number of examples of institutional arrangements for local forestry development and/or management. These include:

- joint management arrangements, whereby local user groups become partners with a forest department in managing public forests and sharing products;

- allocation of usufruct rights on forest areas, including protected areas, to indigenous peoples for sustained extraction of selected products, ecotourism development or processing industry development;

- providing forest development funds to the local administration and shifting the role of forest departments from active forest development to providing extension advice to these local bodies;

- providing community development funds to enable local communities to practice agroforestry and other forms of sustainable resource management;

- allocating state forest or other lands to targeted groups, usually the resource poor, for forest or pasture development and management, sometimes with the agreement of local administrative bodies; and

- providing technical support to self-regulating groups of users that collectively manage and use a common forest resource.

The above are all alternatives to privatization of forest development and resource management. The choice among these options again depends upon the context in a particular country and the nature of the resource base.

Other local issues that have important implications for the development of appropriate organizations and institutional arrangements are (1) the dependence of marginal and marginalizing populations on non-private land and water resources, often times government owned, but also open access and common property lands; (2) the constraints to women's involvement in forestry development in many societies. Institutional strengthening must include measures that increase women's involvement in forestry activities, that increase their participation in decision-making processes at local and higher levels, ensure their access to training and assets or tenure created, and that evaluate the appropriateness of participatory management arrangements for them.

The Institutional Context for Project Planning, Implementation and Impact Assessment

Intersectoral Institutional Issues Related to Forestry Projects

Identification and formulation of projects has become much more complex as projects have to deal with the wide variety of socioeconomic and environmental dimensions of forestry and agroforestry. Many of the factors which drive the issues with which forestry is now trying to grapple, such as deforestation due to encroachment by the land hungry poor, lie in other sectors (see table 2.1). Solutions, therefore, often have to be found outside forestry—in changes in patterns of land use, agricultural pricing, etc. Development within the forest sector therefore increasingly rests on being able to understand how it is linked to decisions elsewhere within the economy, and how the intersectoral institutional issues can be resolved. However, these strong intersectoral linkages often are ignored. There are very few countries that have any sort of formal mechanisms to routinely integrate forest sector work with work in other sectors or in the economy as a whole (World Bank 1991).

This neglect of the broader context within which they are located underlies many of the weaknesses of early social and environmental forestry projects. The problem of project formulation in isolation from related pricing, tax, trade and other policies outside forestry has been exacerbated by the tendency to focus on a single narrow issue, such as fuelwood. Tree growing and fuelwood use are usually embedded in complex resource and social systems, within which most of the factors that determine what can be achieved through forestry solutions are of a non-forestry nature. Failure to understand this led to attempts to solve what are essentially broader problems of rural poverty through plantation projects.

Effective identification and planning of projects is facilitated if there is a well functioning set of institutions that are connected and coordinated in national forest sector planning, investment and management system, through which sectoral and national priorities are identified and resources allocated. Experience to date is not good. For example, a recent World Bank study of 335 completed agriculture and forestry projects in 92 developing countries reported that "countrywide assessments of the state of resource management, or of developments that were affecting the use of renewable resources, were rarely made. Since this wider context was often lacking the selection of projects tended to be opportunistic" (World Bank 1989). In other words, the national sector wide planning that is needed to make sense out of project priorities is missing in most countries. This, in turn, is partly because the institutional linkage mechanisms have not been created.

At the same time, some projects do logically and appropriately originate within a much more limited framework—in response to particular needs, bottlenecks or opportunities; or in follow up to an earlier project; etc. The danger with developing projects in isolation is that they may preempt a potentially better project, or, more fundamentally, be in conflict with higher level objectives, be incompatible with the policy context, be poorly or wrongly designed because information available only at a higher level was not taken into account, or may be trying to apply a project approach where some other form of intervention would be more appropriate.

In addition to intersectoral issues, there also are issues related to geographic linkages for projects within the forestry sector. Some local project linkages to the rest of the world can be assessed effectively only within the framework of a region or some other broader spatial unit. This would be the case, for example, for downstream impacts of interventions in land use practices in upland areas. These are impacts that are more likely to be understood looking at the whole system rather than by trying to separate out and trace the impact of particular projects in their own region of activity. Such a narrow focus would result in an underestimation of impacts. Yet, often times the institutional framework and coordination for action within such a broader view of linkages is missing.

Integrating Project and Policy Interventions

Another reason for ensuring that project planning is closely linked with the broader institutional context of development, is to ensure consistency of project interventions with existing policy. Project interventions should complement and be compatible with policy interventions, and need to be compatible with the policy framework within which the project has to operate.

It is said that a "good policy beats a good project" any day. In other words sometimes a policy intervention or change will be more effective than investment in additional projects. For example, an increase in the growing of trees by farmers might be much more effectively achieved by removing restrictions on wood prices (thus increasing the potential returns to growers) or by eliminating regulations which restrict private producers' access to markets, than by investment in a project to establish rural nurseries. If the latter is required, it is unlikely to succeed if the incentives and constraints created by policy interventions discourage tree growing. Thus, most often combinations of policy and project interventions are required to achieve positive and effective results.

Project planners therefore need to consider the policy context within which their projects will operate, and which policy variables are likely to affect performance, and in what manner. Project design needs to be consistent with, and sensitive to, prevailing policy measures, or may need to incorporate conditions which remove existing policy constraints. Where the influence of policy is particularly strong, it could prove that a project approach would be ineffectual, and that sectoral or programme aid, to reinforce policy reform would be more appropriate (Winpenny 1991).

Project planners also need to be alert to the possible impacts of policy changes of a macroeconomic nature, as are happening at present in many countries as part of the process of structural adjustment. For example, devaluation, reduction in export taxes and removal of price controls, could result in increased prices to agricultural producers, a change that could in turn have a number of effects on forestry. Some crops, cultivation or livestock practices promoted in this way could encourage further clearance of the forest. On the other hand, higher agricultural prices could lead to increased profits being invested in improved agricultural productivity, and more intensive use of land already under cultivation rather than more clearance of forest on marginal agricultural land (Markandya and Robinson 1990).

Improving the Institutional Framework for Forestry Projects

Since forestry institutions must face certain endemic issues, together with the contemporary problems outlined above, the need for good institutional analysis is acute, particularly if the forestry sector is to successfully complete the transition to the new generation of forestry projects and programmes. Within the field of natural resource management and rural development in general, there is increasing interest and pressure to improve the level of institutional analysis. Various analytical approaches are available, ranging from the more conventional audit of organizational capacity, which examines what the institution has, to the internal dynamics of the institution, which focuses on leadership and management, to the more dynamic assessment of the policy environment, which focuses on incentives, performance, and sustainability (VanSant 1989). There is also increasing evidence that local organizations of beneficiaries have a key role to play in achieving sustainable development (Korten 1990). In considering ways of making the institutional framework for forestry projects more effective, the following key questions need to be considered:

> *Is there a favourable political environment?* The relevant political context in which the programme will operate needs to be assessed in terms of how it will constrain or enhance institutional behaviour and effectiveness, particularly in relation to the proposed programme activities and goals. Of particular importance here are the extent to which the government is committed to forestry for sustainable development in its economic, social, and environmental dimensions and the ways in which it supports the participatory approaches necessary for achieving such goals. This should include support for community forestry, gender issues, and the rights of minorities. Identifying this context is crucial to understanding the likely impacts of a project and its feasibility.
>
> *What are the internal dynamics of the key institutions?* It is essential to understand the internal decision contexts of institutions and who has the authority to make decisions and

implement changes. Equally important is an understanding of what the organizational incentives and disincentives are for undertaking programme activities and for achieving alternative impacts.

What is the level of institutional capability? An assessment is required of the capability and willingness of the participating institutions to undertake the activities proposed under the planned intervention, together with the identification of the principal constraints in fulfilling their present mandates. Of particular importance is the extent the involved institutions can attract and mobilize necessary financial resources and manage them effectively over time. The assessment should specifically focus on the activities that each institution and organization will be responsible for under the planned intervention; and on how consistent local and sectoral institutions are in actual fact.

Is there a hospitable institutional environment? An organization must adapt to external conditions in order not only to achieve its goals, but also to survive. Planners and implementers must focus on the demands such external conditions make on an organization and the constraints they place on organizational action (Rondinelli, Middleton, and Vespoor 1989). A particular function of management is mastering these external conditions. One aspect of this is forging productive linkages with other institutions whose support or cooperation is necessary. Mechanisms for coordination with other institutions may be formal, for example, joint committees, task forces, staff transfer, report sharing, or informal, for example, ad hoc meetings, personal interaction, or exchange of services. These external linkages enhance or ensure access to resources critical to the institution. These links may be horizontal or vertical and can be forged by coalition building, claim making, or building political and bureaucratic support. Information should be provided only on those local and sectoral organizations—public, private, and nongovernmental—that have affected previous development interventions and may throw light on those proposed under the programme (Bennett 1985).

Analysis of these types of questions should form an integral part of the overall social feasibility analysis which—in its most practical form—is a methodology which provides guidelines for studying and identifying the social and political factors that may affect project impacts on people involved with the project. On the basis of this assessment, potential problems that may arise during project implementation can be identified.

PART II

Assessing Forestry Project Impacts on People

The impetus behind the new generation forestry projects is the increasing concerns in developing countries, in donor agencies, and in NGOs about environmental impacts, inequalities in the distribution of the benefits, and lack of sustainability of the positive impacts associated with many of the conventional types of forestry projects. Recognition of the close links between forestry and other sectors has also played a role in how the new generation of forestry projects has shaped up in practice.

With the introduction of an increasing number of important social and environmental objectives, and with the growing importance of non-market uses of forests and trees, comes a need for new strategies and approaches for assessing the potential and actual impacts of forestry projects. New questions need to be asked and new tools need to be developed and used to address those questions. Assessments are needed by project planners and decisionmakers at each stage in the project development process to help them make decisions concerning investment of resources, changes needed in project direction, and policies needed to support activity in the forestry sector.

More realistic impact assessments also are needed to provide the arguments for investment in the new generation of forestry projects. In the days when the main investment was in industrial or commercial types of forestry projects, the nature of the benefits and costs was much clearer to decisionmakers—we were dealing with commercial products that had market prices, and most costs were in market price terms. With the new generation of forestry projects the political constituency has broadened out considerably, and a broader range of impacts are of concern. Forest land managers need to be able to communicate effectively with those who make decisions regarding investment and allocation of funds.

The linkages between effective communication of potential impacts of forestry development and the types of institutional issues mentioned in the previous section are direct and often complex, and also critical to recognize if we are to generate the resources needed to fulfil the potential contributions of the forestry sector sustainable development.

Through practical assessment and communication activities, key government decisionmakers can be made aware of the potential contributions and the past, actual contributions of forestry. In developing these communications, there is need to stress the links between *top-down* and *bottom-up* communication, and the *links between forestry and people, not just forestry and revenue generation,* although that also is important. There also is a need to avoid focusing on physical accomplishment targets, and to stress targets that are more responsive to people's actual needs.

This type of communication needs to be backed up by more than wishful thinking and assumptions. Thus, to develop the type of information needed for such communications, it is necessary first to assess impacts of past forestry activities; to speculate in a systematic fashion on the impacts of new forestry projects and investments; and to accumulate and use the experiences of other, similar countries.

Communications to decisionmakers must stress the following institutional needs and issues that are of relevance in a majority of countries:

- need for *supportive legislation;* and clear and *stable land use policies*, and the *enforcement mechanisms* needed for implementation;

- need for appropriate *organizational support and location in the government* for forestry and agroforestry; need for *incentives for local NGOs and government organizations;* need for *incentives for local forest officers* involved in projects to encourage and reward strong performance;

- need for *adequate and secure levels of funding* to implement activities, including follow-up funding to sustain key activities initiated and funded by external donors (NGS, bilaterals, and multilaterals);

- need for *appropriate training, education,* and career paths for professionals (and for forestry awareness training for related sectors); need to *strengthen local institutions*;

- need for development of a *responsive research system* that addresses the changed role of forestry (and agroforestry), and a system for getting new knowledge into the field; and

- need to develop more *systematic, long-term planning* mechanisms for forestry that take into account the long gestation periods for most forestry activities and the need for continuity in funding and action.

In developing the arguments for each of the above needs, it is critical that discussion illustrate to the political decisionmakers the positive impacts that can result, and have resulted, from meeting the needs. That is where impact assessment and the discussion in Part II come into the picture.

Part II deals with the impact assessment process and the key questions which need to be answered as this process is applied during project development and implementation. The focus is on the particular aspects that are most relevant to the new generation of forestry projects.

The basic objective in impact assessments is to identify and assess the changes which take place in the welfare of people affected either directly or indirectly by the project. In order to move toward this objective, we need to:

- identify clearly the relevant groups and people impacted;

- decide what impacts on their welfare are important, and, thus, important for the assessment;

- decide what dimensions and measures of welfare are relevant and should be considered; and

- decide what questions about these dimensions of welfare need to be addressed in the assessment.

These four elements are covered in chapter 4. Chapter 5 then goes on to discuss some of the strategic and operational issues involved in designing and developing an effective approach to assessing impacts at different stages in the project development process.

4

IDENTIFYING KEY QUESTIONS ABOUT PROJECT IMPACTS ON PEOPLE

In developing an assessment of the impacts (potential or actual) of new generation forestry projects, it is critical to first identify clearly the range of people impacted, the key impacts on them, and the priority questions about such impacts that need to be addressed by the assessment.

Identifying People Involved In and Impacted By a Project

Decisions made by different people concerning their participation in a project depend on their interests, and objectives, and their understanding of how the project will impact them. To insure achievement of desired impacts and to reduce future conflict in a project, the major project related groups with differing views or agendas must be identified and their interests considered. The most important agendas of key project actors and their likely influence on the project are highlighted in figure 4.1. It is important that people recognize clearly that differing agendas can produce serious conflict situations that can divert the project from stated goals. This initial appreciation of potential conflicts can be followed by explicit discussions of how to resolve them. Just obtaining this understanding can be a major achievement—particularly the recognition that much development work has strong political implications at both macro and micro levels. In addition to identifying groups and their concerns, every effort should be made to involve representatives of the groups in the design of assessments so the results likely to be used effectively (Patton 1986; Weirs and Bucuvalas 1980).

Group	Agenda	Influence on Project
Donor Agency	Programme monies for development activities that comply with substantive directives and procedural regulations	Blueprint designs will be written to obtain approval; as a result, possible implementation problems will be glossed over
National Ministry	Wants to maximize control over resources and how they are used	Little local involvement in project decisionmaking; little support by government agencies directly responsible for project implementation
Lower Level Politicians	Want to take credit for project and ensure that existing power structure remains in place	Distribution of project benefits will reflect desires of existing power structure
Project Staff	Want career advancement and quality of life not offered by rural areas	Rapid turnover and absenteeism which reduce effectiveness of capacity-building efforts and threaten sustainability of project benefits
Intended Beneficiaries	Livelihood security; risk aversion; freedom to accept, adapt, or reject interventions	Wait-and-see attitude; need for flexibility; time factor underestimated
Other Members of Local Population	Threatened by or envious of project activities and benefits; everyday forms of peasant resistance	Further delays in achieving project objectives

Source: Based on Morss and Honadle 1985: 205-206.

Figure 4.1. Major project groups, their agendas, and potential effects on a project.

Participation from the local people, e.g., indigenous populations and the rural poor, is a key focus in the new generation of forestry projects. Furthermore, there is a heightened sensitivity to those who can be affected negatively or positively through environmental impacts or externalities, e.g., the larger global population affected by deforestation and loss of biodiversity, or the downstream landusers affected by changes in upstream land use. Project decisionmakers should be sensitive to a broad range of potential environmental, social, economic, financial, and institutional impacts on people due to new generation forestry projects see box 4.1).

Box 4.1. Interest groups in the case of natural forest based project.

Looking at the case of a project that would involve change in the use of a natural forest, we can identify at least four groups that have distinct views on potential impacts and values gained or lost. Thus, there are:

1. *Groups with commercial interests in specific parts or aspects of the forest.* These groups are interested in the market values associated with use of certain parts of the forest.
2. *Local forest dwellers with their interest in livelihood/survival values.* These groups are interested in the forest as their living environment and as a source of sustenance and livelihood.
3. *Environmental advocacy groups.* These groups are interested in *all* the goods and environmental services that are and can be contributed *on a sustainable basis* by the forest including the educational and spiritual values associated with forest preservation. They are interested in the forest in a holistic, non-consumptive sense.
4. *Slash and burn agriculturalists, ranchers and others with an interest in the land underlying the forest.* This group assigns a *negative* value to the forest itself, i.e., they would like to see it cleared and gone. To these groups, the forest is nothing but a nuisance: letting it stand involves a cost; it harbors dangerous animals; it is the home for animals and insects that attack adjacent agricultural crops; it hinders travel and road construction; it is in the way of progress in agriculture and ranching. From the point of view of these groups, the forest that is grown on the underlying land they want has a negative value at least equal to the cost of clearing it. Having said the above, we also should point out that in fact the forest has a positive value to the slash and burn farmer practicing shifting cultivation with forest fallows where the forest renews the nutrients in the soil for the farmer. We come back to these types of "hidden" values later on.

Identifying Project Impacts on the Welfare of People

The new generation forestry projects, just like traditional large scale industrial forestry activities, generate physical changes, e.g., change in existing forests, creation of new forests (plantations), changes in erosion rates, increased jobs for people, increases in productivity, and changes in farming systems (e.g., through introduction of agroforestry technologies). When such changes are in the natural environment we generally call them *environmental impacts*.

These physical/environmental changes in turn lead to social and economic impacts on people. The point to be emphasized here is that: *For the basic physical/environmental changes or impacts to have meaning to most decisionmakers, they have to be translated into social and* *economic terms,* i.e., impacts on the welfare of people. This does not lessen the critical importance that should be placed on the basic physical-biological impacts of projects. However, when decisionmakers compare alternative uses of scarce resources, they generally compare the impacts on people, or increases in the welfare of target groups that can be achieved with alternative investments of resources. They have to see physical/environmental impacts in terms of *people impacts.* Answers to questions about environmental impacts need to be generated before assessing people impacts, because the latter are in most cases a direct result of the former.

Many of the positive environmental impacts associated with sound forest management and agroforestry have been disregarded in decisions because they were not translated into social and economic value terms that have meaning to decisionmakers. Physical changes in the environment due either to natural or human action need to be given high priority in decisions about forestry and agroforestry projects. However, in order to have meaning to decisionmakers, they must be associated with social and economic impacts on people, since (1) the latter are the main, if not the only, impacts considered by most decisionmakers; and (2) environmental change in one area can have totally different social/economic impacts than those created by the exact same environmental change in another area, thus, it becomes difficult to assess their importance for political decisionmaking without knowing their human impact dimensions (see box 4.2).

Box 4.2. Translating environmental impacts into economic and social terms.

A forester suggests to a regional governor that reforestation and related activities could reduce dramatically soil erosion rates on abandoned agricultural land on the slopes of a river valley by as much as 7 tons per hectare per year. Reducing soil erosion is a positive *environmental impact.* However, in and of itself, the reduced soil loss is not necessarily a benefit to humans, which is the main thing that concerns the governor. Thus, the governor immediately asks how this environmental impact will affect the people in his jurisdiction, i.e., what are the social and economic impacts.

In fact, the social and economic benefits involved depend directly on where the environmental impact occurs. At the one extreme, if the river valley is unpopulated and the river flows into the ocean with little or no existing or planned use by humans, the benefits from the reduced erosion are likely to be quite small in terms of short-term social and economic values. The governor most likely will not be interested. At the other extreme, assume that the river flows into a dam reservoir that provides hydropower and domestic and irrigation water for hundreds of thousands of people in the governor's territory. The reduced erosion could reduce sediment buildup and loss of needed capacity in the reservoir and thus avoid losses below the dam that have direct social and economic impacts. The social and economic benefits from the reforestation leading to reduced sediment could be quite significant in this case, even though the environmental impact (erosion reduction) will be the same as in the former case.

The basic point is that a positive environmental impact due to a reduction in erosion will mean little to most decisionmakers unless it is translated into social and economic terms, i.e., into impacts on people, e.g., through avoidance of loss of on-site production values, reduction in loss of life due to flooding, and reductions in loss of irrigated crops and in hydropower values.

In sum, environmental impact assessments are a critical part of the project development process, and they provide important information. However, such assessments need to go beyond identifying physical and biological changes, by linking such changes to impacts on the welfare of people.

Welfare impacts are associated with human *values*; thus, these impacts generally can be assessed in terms of the values attached to them. Box 4.3 provides a classification of the wide array of *positive* values associated with forests. These values run from monetary measures of market prices associated with direct use of the forest, all the way to qualitative psychological (nonuse) values associated with the mere existence of the forest. In the academic world, a clear distinction generally is made between different types of values, with economists claiming all those that can be expressed in monetary terms. In the real world, the distinction often is not very clear. In most cases, psychological, social and economic values all need to be considered together.

Box 4.3. Use and nonuse values associated with forests.

DIRECT USE VALUES ASSOCIATED WITH

Consumptive Uses
- commercial/industrial market goods (fuel, timber, pulpwood, poles, fruits, animals, fodder, medicines, etc.)
- indigenous nonmarket goods and services (fuel, animals, skins, poles, fruits, nuts, etc.)

Nonconsumptive Uses
- recreation (jungle cruises, wildlife photography, trekking, etc.)
- science/education (forest studies of various kinds)

INDIRECT USE VALUES ASSOCIATED WITH:
- watershed protection (protection of downstream areas)
- soil protection/fertility improvements (maintenance of soil fertility, esp. important in tropical regions)
- gas exchange and carbon storage (improvement of air quality, reduction of greenhouse gasses)
- habitat and protection of biodiversity and species (potential drug sources, source of germplasm for future domesticated plans and animals)
- soil productivity on converted forest land (space and soil productivity for agricultural/horticultural crops and livestock)

NONUSE OR EXISTENCE VALUE

People may value a forest or resource complex purely for its existence and without any intention to use the resource in the future. Simply put, they value their existence, and wish to perpetuate their existence. Many are willing to contribute money, time, or other resources to assist in preserving special endangered species and ecosystems. These economically manifested existence values may be based upon religious, spiritual, cultural, or other values held by individuals or social groups within a society. Although such values are difficult to measure, they should be recognized in valuing the contributions of forests to human welfare.

Identifying the Dimensions of Welfare that are of Concern

Which dimensions and measures of welfare changes are of interest to decisionmakers in looking at the new generation of forestry projects? The focus of decisionmakers generally is on three dimensions. They are:

1. The ***distributional*** dimension (who gains and who loses, and how is local participation in decisions and benefits increased?). Included are impacts on different project groups, classified in various ways, e.g., by income classes, by regions or location, at different points in time, by gender, age, occupation type and so forth. The classifications that are relevant will depend on the particular project situation and the institutional environment in which it exists.

2. The ***sustainability or livelihood security*** dimension (can the positive changes in welfare be sustained over time?). The Brundtland Commission's Panel on Food, Agriculture, Forestry, and Environment developed livelihood security as an integrating concept and defined it as the combination of adequate stocks to meet basic needs, secure access to productive resources, and maintenance of resource productivity on a long-term basis (Food 2000 1987).

3. The ***economic efficiency*** dimension, such as changes, in total benefits and costs to the nation or region due to the project, measured in terms of people's willingness to pay for things (which may not be equal to what they actually have to pay for things, as explained below); and the relation between incremental benefits and costs (economic efficiency measures such as rates of return, net present worth, and benefit-cost ratios).

Both monetary and nonmonetary measures are used to assess the extent and significance of these three dimensions of project impacts.

Almost any type of physical/environmental change due to a project can be associated with all three of the dimensions of project impacts mentioned above. For example, if the project creates new employment:

- there will be distributional consequences, e.g., previously unemployed persons get jobs and income; they may gain new status and psychological benefits from being employed and providing for their families; the new outputs produced (goods or services) will affect different groups in different ways, depending on what is being produced; some may lose due to changes involved;

- the changes in employment may contribute to increased sustainability of development, or they may lead to more non-sustainable development, e.g., increased pollution and loss of valuable habitat; and

- there can be economic efficiency gains involved; the nation's overall wealth may increase; or there can be economic losses; or the new jobs may result in significant pollution downstream that kills fish and increases human health problems (this is something that would not show up in the financial accounts, but should show up in the economic efficiency accounts for the project).

The specific types of physical/environmental impacts associated with the new generation of forestry projects, and the questions asked about them, are almost endless. They occur as hierarchies of impacts. Thus, change (an increase) in fuelwood supply (output) can impact employment, which in turn can impact health and food supplies, and so forth, ultimately ending with a change in human welfare/satisfaction for one or more groups.

The impacts and questions about them that will be given priority in any given assessment situation should depend on the circumstances surrounding the project and the interest groups associated with the project. To some, employment may be top priority; to others it may be foreign exchange earnings; while to still others it may be expansion of local empowerment, health improvement, or some other impact such as change in political stability. The choice of impact categories will ultimately be made by those who make decisions, hopefully considering the interests of the diverse stakeholders involved.

In sum, the focus for the new generation of forestry projects is on (1) the distribution of benefits to poor and disadvantaged groups, including the distribution of power or empowerment of local project participants; (2) the environmental sustainability and the contributions to livelihood security of projects beyond their formal lives; and (3) the economic efficiency associated with the use of resources in the project (this is the traditional dimension which has been of interest to decisionmakers, and which remains important in an overall assessment of impacts of new generation forestry projects. In the remainder of this chapter, the relevant questions for impact assessment will be looked at in terms of these three dimensions.

Questions Concerning Distributional Impacts

One of the underlying social objectives of forestry projects is to ensure more equity in access to development resources and distribution of the ensuing benefits. Hence, the distributional impacts of the intervention should be studied in detail to ascertain who is and who is not benefitting and also how they are benefitting. Care must be taken to distinguish between the various groups and their differing agendas and needs. This is particularly true in the case of men and women and their differing interests in and access to available resources (FAO 1989c). Women are often in a distinctive tenure position regarding trees and rights in trees. They may or may not have the same rights in land and trees as do men, and may in fact not be allowed to grow certain species of trees or to grow trees at all in certain tenure niches within the family landholding (Bruce 1989).

Women and men use trees for different purposes. For example, in the case of fuelwood, women may be concerned primarily with its availability and collection for domestic use, whereas men may be interested in it primarily as a cash crop. In the case of secondary tree products, women are heavily involved in collecting human food and having fodder for small animals available near the home site. In contrast, men—generally speaking—have little interest in collecting wild food products from natural vegetation. Hence, a decision to restrict access to these resources—as in the case of a nature reserve or national park, will have a more negative, direct impact on women and, indirectly, on the family as a whole (Hoskins 1983).

This also holds for minority ethnic groups and forest-dwelling communities whose interests may have been ignored. Forestry projects must ensure that the rights of these people are respected and their interests integrated into the proposed activities (Ingersoll 1990). Failure to do may cause severe social and political problems in the near term.

Different local groups are dependent on forests and trees in a variety of ways—for subsistence, income generation for subsistence, or for surplus production. The level and degree of dependence varies, though often the poorest are the most dependent. Hence, they may be the most vulnerable to any changes made in the nature of the tree and forest base—whether in terms of use, availability, or access. What is required is a specification of who these groups are and what they are dependent on forests and trees for—forest foods, building materials, medicinal plants, fuelwood, fodder, raw materials for forest-based enterprises, biomass for natural fertilizer, to name some of the more common uses (Peluso 1991).

Specific questions commonly asked in assessments of distributional impacts of the new generation of forestry projects include the following:

Q.1. *How are the benefits and costs of the project distributed among different groups?*

This boils down to the question of who pays and who gains? Nonmonetary as well as monetary benefits and costs are included. Countries often are concerned with income redistribution effects of public investments, i.e., the equity issue. In most projects, concern centres on different income classes (do poorer members of society receive more benefits than richer members?), regional groups (does region X receive more benefits than region Y?), or cultural groups (does clan A benefit more than clan B?) or on gender (do men benefit more than women?). Intergenerational equity issues might also be of concern (how will future generations be affected; will the next generation reap benefits or costs from the project?). This latter issue is also of direct interest when looking at the sustainability dimension.

Q.2. *Specifically, how does the project help disadvantaged people, such as women, the landless, and minorities?*

Forestry activities are uniquely positioned to benefit the disadvantaged in rural areas because of the role trees play in the household economy where women's position is crucial, in the rehabilitation of degraded lands which may benefit the landless, and in the livelihood security of forest dwellers who may be heavily dependent on trees and their products. This role is reinforced by the growing awareness of the relationship between environmental degradation and poverty alleviation. Answering this question calls for some careful discrimination and awareness of the various groups living and working in the project area.

This is much more easily said than done since often such groups remain *invisible* unless the analyst makes a conscious, deliberate effort to talk with them. Those who make brief visits to the countryside have been termed *development tourists,* since they generally focus their attention on elites, men, the healthy, the users of services, and the adopters of technologies. Excluded are the poor, the women, the sick, the old, the infirm, and the insane (Chambers 1983). One way to counteract this bias is through the Village Dialogue Approach practised in Nepal in the design and implementation of local resource management projects (Messerschmidt 1987). Once dialogue is established between the assessment team and the village as a whole, the team encourages local villagers to divide into homogeneous groups for discussion, e.g., landless grazers, artisans running wood-based enterprises, women, smallholders, and so on, thereby fostering a better understanding of resource issues affecting all levels of local society, while at the same time avoiding co-option by the local elite. When they meet again with the whole village, non-elite members become more outspoken.

Q.3 *Who loses as a result of the project and how?*

In certain types of projects there are people who lose as a result of the planned interventions. In the past, this has often been the case with land settlement projects—where people were sometimes forcibly moved into areas where other people were already living. It also happens on a smaller scale when new ways of structuring marketing activities may displace the traditional traders or middlemen. In some cases, certain segments of the population may be excluded by conditions introduced by the project. For example, where women play important management and production roles, a project directed toward men—explicitly or implicitly—may place women, and perhaps their children, at risk (Partridge 1984).

In the case of forestry, watershed management has proven problematic on this score. A single watershed may contain a broad diversity of tenurial arrangements, stratified social groups, diverse farming systems, and various land-use patterns (Cernea 1985). Often there are several resources involved since rehabilitation of deforested watersheds demands not only watershed forestry and massive planting of trees but also flood control and soil conservation, using both mechanical and vegetative means. There may be changes in rights to land, in rules of inheritance, in settlement patterns, and the number of inhabitants (Uphoff 1986).

In cases where people have lost as a result of the planned interventions, it is important to know what forms of help or assistance, if any, the project provides to mitigate their losses. Sometimes these eventualities have been taken into consideration in the project design, but often they have not.

Q.4 *In what way does the project encourage the equitable distribution of benefits and costs among the local population?*

Given human nature and the track record of many forestry projects to date, equitable distribution of project benefits and costs rarely happens of its own accord, particularly where there are various groups and interested parties competing for what are often scarce development resources. For such a situation to occur requires the introduction of mechanisms to establish some consensus on what is *equitable*, monitor progress, and, where necessary, enforce certain agreed-upon standards of benefit distribution. This may be done in various ways—through the establishment of some representative body such as a committee, a task force, or working group, through the devolution of authority to some local body, or though some form of central mandate. The focus here is on the extent to which the project takes this into consideration, and how successful the measures/solutions are likely to be over the long-term.

Q.5 *How does the project affect local empowerment and participation in development?*

Despite the wide agreement on the need for popular participation in development projects if they are to succeed, most projects are still not planned from the beginning with a strong participatory approach. For example, rural organizations are a key element both for participatory planning and for the sustainability and continuity of the project once implementation begins. Yet such organizations are often regarded with apprehension by decisionmakers who may view them at best as a nuisance and at worst as a threat to their power. Yet such organizations, whether formal or informal, can play a key role in sustainability. As such, it is important to know what role they play in the project and what impact the project has on them.

The fact that people take advantage of the resources and services offered by the project—on terms dictated by the project—does not necessarily mean they are *actively* involved with what happens. The focus here is on the ways in which local people are to be involved in project design and implementation, monitoring and evaluation—the extent to which they are to be empowered to sustain project benefits.

What is required is an assessment of the capability and willingness of the local groups and organizations to undertake the activities of the project, together with the identification of the principal constraints in fulfilling their present mandates. With a view towards sustainability, the assessment should also identify possible mechanisms for local management of project activities. Equally important are the functional linkages with other organizations and institutions involved with the project. Such linkages at all levels—forward and backward, horizontal and vertical—are important for the provision of political support and for obtaining access to information and resources.

Q.6. *In cases where project success depends on groups being involved financially in the project, is that involvement financially acceptable (profitable) for them?*

Do key private groups have sufficient financial incentive to participate? What are the cost and benefit flows to private investors or to participating farmers and landowners? (If they do not find the project attractive enough, then it may be necessary to consider providing incentives or subsidies.)

Q.7. *What are the budget impacts of the project for different agencies and/or groups?*

Does the project stay within budget limitations for the different groups involved? What funds will be needed to cover operating expenses? When will funds be required to support the project (outflows) and when can receipts (inflows) be expected? What are the recurrent cost requirements in the future, e.g., for road maintenance, forest management costs? The whole question of cash flow and ability to maintain it is relevant here and also in looking at likely sustainability impacts.

Q.8 *How does the project affect foreign trade and foreign exchange flows? How does the project impact other sectors and the financial stability in the country or region?*

This question relates to the foreign exchange impacts and the distributional question of how the project affects other sectors such as agriculture, transportation, and so forth.

In countries with a large net outflow of foreign exchange, this question may be of critical importance, and may influence decisions on foreign exchange expenditures in projects and on the levels of subsidies and tariffs. Other impacts of interest here are those that the project has on the stability of regional income and jobs. For example, a nature tourism project may be highly seasonal in terms of benefits and may involve a great deal of instability in terms of income flows in that sector.

Questions Concerning Sustainability and Livelihood Security Impacts

Livelihood security is key for better understanding the role that the three broad types of forestry projects—industrial development, rural development, and environmental sustainability projects—can play in the lives of local people. As mentioned, the Brundtland Commission's Panel on Food, Agriculture, Forestry, and Environment developed livelihood security as an integrating concept and defined it as the combination of adequate stocks to meet basic needs, secure access to productive resources, and maintenance of resource productivity on a long-term basis (Food 2000 1987).

In normal professional usage, poverty is a synonym for deprivation and is measured in terms of flows, whether of income or consumption. No account is taken of stocks or assets and their role in maintaining the household at some basic, acceptable standard. Nor has much attention been paid to what people do with these stocks and assets when productive opportunities start diminishing. Yet those who are defined as falling below the poverty line have developed various adaptive strategies for survival which may vary by season and location. Even in conditions of moderate poverty, many households invest off-farm. If this is insufficient, then they will seek support from their extended kin. Should this in turn prove insufficient, then they will begin to dispose of their productive assets, such as smallstock, or seek a loan from a local merchant. Increasingly, trees are regarded in the same way as livestock. In the case of Haiti, for example, crop failure is so frequent and the market for wood and charcoal so secure, that farmers prefer to leave their trees as a bank against future emergencies (Murray 1987).

In such a situation, the conventional development approach is to try to assure farmers employment, a job, training, or an asset that will provide for all or almost all their needs. But a more viable alternative may be to strengthen their existing strategies, in which productive assets often play a key role (Chambers and Leach 1987). A common, perhaps universal priority expressed by rural people is the desire for an adequate, secure, decent livelihood which provides for physical and social well-being and this includes security against sickness, early death, and impoverishment. But once basic survival is secured, under safe and secure conditions, there appears to be a strong propensity to stint and save when the opportunity arises and take the long view—for example, the sacrifices parents will make to invest in their children's education or the extraordinary tenacity with which farmers will struggle to retain rights in land. Providing people with the necessary base on which to build and create for the future is a prerequisite for good stewardship (Chambers 1989).

In practice, this means that development interventions should concentrate on assisting local people to develop their productive resources and, in cases where these resources are limited or insufficient, assisting them to create new resources. Possibilities include:

- secure rights of ownership and usufruct of assets, including sale and inheritance;
- transform small-scale tenancy and sharecropping into inheritable rights to land;
- allocate degraded forest land to poor households for growing trees and, where appropriate, for growing crops and raising livestock; and

- reinforce livelihood strategies by supporting diversification, including nonagricultural activities.

These findings are partially corroborated by a recent report, part of a larger study financed by AID to address natural resource management (NRM) in the Sahel (Shaikh et al. 1988). The report focuses on a host of on-farm agricultural production practices that show promise for sustainable agricultural growth in Gambia, Mali, Niger, and Senegal. The emphasis was on what works and a total of 70 successful NRM initiatives—many small-scale and localized—were visited.

The interventions with the greatest impact were found to be those that resolved the problems of the local population—rather than those of the environment per se. Precisely because environmental degradation now visibly threatens local production systems and their capacity to survive, farmers have turned to NRM to accomplish two things: first, to protect the soil and water resources on which their production depends; and second, to provide new opportunities for income, such as pole production, orchards, gardens, fuelwood, and fodder sales.

Specific questions commonly addressed in assessments of sustainability and livelihood security impacts of the new generation of forestry projects include the following:

Q.9 *What are the impacts on livelihood security—with a primary focus on resource control and income generation?*

The focus here is on the positive effects of the planned interventions on the lives of the local population, with an emphasis on the more productive long-term aspects. From a social perspective, development interventions should concentrate on assisting local people to develop their productive resources and, in cases where these resources are limited or insufficient, assisting them to create new resources, in this way providing a more favourable context for improved stewardship of the natural resource base. What is required here is a specification of *how* the benefits discussed in question 2 have contributed to livelihood security and vice versa.

If trees and forests are to be managed on a sustainable basis, then the key is local participation in management—if not outright local control of the resources in question, often through some system of communal or joint management (see also chapter 3). There is increasing interest in and recognition of the role of common property resources (CPRs) in the form of forests, woodlands, and wastelands and the extent to which they satisfy local needs for forest foods, products, and fuelwood. There is also an acceptance that such common management of local tree resources is in a state of crisis, thanks to privatization, encroachment, and government appropriation (Arnold 1991a). One solution to this has been the introduction of joint management systems where responsibility is shared between the local population and the respective forestry department. This has been implemented most notably in the hill regions of India (Poffenberger 1990). The basic sociological principle is to create a clear link between a well-defined small group and a well-defined tract of forest land that is to be protected or planted, with the active support and involvement of the forest department, particularly in defining and protecting the boundaries of the CPR area against outside use and encroachment. Members of the group need to perceive a clear correlation between their contributions and the returns they get (Cernea 1989).

Where such increased control over local resources is not possible, the focus should be on employment generation as a result of the planned interventions. Commercial plantations can provide both direct and indirect employment opportunities for some rural people. Forests, on the other hand, provide a source of income and employment for many families who depend on money earned from gathering, selling, and processing forest products to buy food and other basic necessities. For the poor, and also for women, they are often one of their only sources of cash income. The particular products involved vary from region to region depending on markets, local traditions, alternative means of employment, and the types of forest resources available in the area (FAO 1989b).

Q.10 *Are the benefits sustainable over time?*

The focus here is on the benefits that should be sustained once external assistance, or the formal project, ends. This may include all the benefit flows or, more likely, certain specific benefits. Ways in which sustainability is to be achieved should be outlined and the analysis should include information on specific measures undertaken by the programme to provide the necessary economic and political security for both individuals and institutions to pursue sustainability on their terms. Information should also be included on the obligations and responsibilities of each of the respective parties for achieving sustainability. Finally, the analysis should briefly identify the key constraints to achieving objectives.

In assessing the Agroforestry Outreach Project in Haiti, in preparation of a second phase, sustainability became a major issue, especially when viewed within the developmental context at that time when the central government had effectively refused responsibility, leaving the NGOs to their own devices, often heavily dependent on external funding. During the assessment, it became apparent that farmer training and institutionalizing local demand were the most important and relevant points, given the prevailing institutional and political situation in Haiti (Lowenthal 1991). Project participants in several regions were already experimenting with the on-farm propagation of project trees, on their own, with little or no direct stimulus from the project. This spontaneous development—though clearly a result of project interventions in the broadest sense of that term—obviously bodes well for the long-term sustainability of relatively large-scale agricultural tree-planting beyond the life of the project.

In Haiti, farmers understand that trees are a production crop, one that can be farmed and incorporated into improved farm management practices. As a result, there is a large, unmet demand for seedlings, by both new planters and repeaters. The continued stimulation of a *strong, permanent demand* by the rural, hillside farmer for hardwood seed and seedlings, including hedgerow species, is the bottom line of sustainability for the second phase. If such a demand continues after project completion, the project will have achieved something few other projects have been able to do in Haiti—create an environment where farmer demand will become an important force in shaping the type of assistance and extension that is directly relevant to his needs.

Q.11 *What are the budget and financial sustainability (recurrent cost) implications of the project?*

A common cause of non-sustainability of project benefits introduced by an outside agency or group is the lack of ability or unwillingness of local entities to sustain the recurrent costs which are needed to keep project activities going, e.g., road maintenance costs. During the life of the project, the budgetary capacity of the local organizations needs to be built up and developed so that it will be in place when the formal project is terminated.

Questions Concerning Economic Efficiency Impacts

The third dimension of welfare deals with the overall relationship between the costs and the benefits associated with the project. As in the case of the financial questions asked earlier, e.g., in the section dealing with the distributional dimension of welfare impacts, economic efficiency assessments use monetary units as the measure of impact. Question 6 is dealing with *financial efficiency* (profits, or the difference between market priced costs and returns) of private project participants. There are two significant differences between economic and financial efficiency measures.

They relate to:

(1) *what costs and benefits (or positive and negative impacts) are included* in the assessment; in the financial analysis, only direct market traded costs and returns are considered, while in the economic efficiency analysis, as many as possible of the non-market costs and benefits (negative and positive impacts) also are valued and included in the assessment.

(2) *how those costs and benefits (impacts) are valued;* financial analysis always uses market prices; the economic efficiency analysis uses best estimates of people's willingness to pay for goods and services. In economic analysis, market prices often are adjusted to more accurately reflect social or economic values. These prices are referred to as *accounting* or *shadow* prices. For example, if there is significant structural unemployment, and a project employs otherwise unemployed labourers, then in the economic efficiency analysis we might apply a labour value lower than the ongoing wage to reflect a lower opportunity cost for such labour that otherwise would be unemployed.

Table 4.1 summarizes the differences by the steps in the assessment process.

The term *financial analysis* is used to describe the type of analysis that is concerned only with actual monetary flows from (cost) and to (return) specific individuals or groups of individuals within society—farmers, private firms, public corporations, and others. In that sense it is a measure of distributional impacts. Financial analysis deals only with those goods and services for which people pay or are paid, e.g., for labour, capital, land. Financial analyses always have to be done from a specific point of view, e.g., that of a government agency, private firm or individual, cooperative, etc. Thus, financial impacts fall into the general category of distributional impacts discussed earlier.

Economic efficiency analysis, on the other hand, is concerned with the costs and benefits to society as a whole, regardless of who pays and who gains. That's why it is not considered under distributional impacts. It deals with benefits measured in terms of what society is willing to pay for goods and services, and costs in terms of the *opportunity costs* involved, e.g., the values of the opportunities foregone when a resource is used for one purpose rather than its next best use that actually would have occurred. These concepts are valid regardless of whether or not money actually is paid for a good or service. (A much more detailed discussion of financial and economic assessment is provided in Gregersen and Contreras [forthcoming].)

In general terms, one question is asked in the assessment of economic efficiency impacts:

Q.12 *Does the project involve an economically efficient use of the nation's resources?*

In other words, do the benefits to the nation, or to the relevant subunit of the nation, exceed the costs of the project, when both are appropriately valued? If there is some way of making more efficient use of the nation's resources, then the answer is "no." Thus, we have to ask: could we eliminate any of the separable components of the project and get higher net benefits; or could we obtain the same benefits with lower cost or with less use of resources? When a main project objective is to increase the aggregate economic benefits (goods and services) derived from the use of the country's limited resources, then the economic efficiency question becomes a central one of concern to public decisionmakers.

Table 4.1. Relationship between steps in a financial and an economic efficiency analysis.

Financial Analysis	Economic Efficiency Analysis
1. Identifying and quantifying inputs and outputs	
Direct inputs provided by the financial entity and outputs for which the entity is paid are included.	In addition to direct inputs and outputs, indirect effects are included, i.e., effects which are not included in the financial analysis since they are not bought or sold within the project context. These are effects on others in society.
2. Valuing inputs and outputs	
Market prices are used. For inputs and outputs which occur in the future, future market prices are estimated.	Consumer willingness to pay (w.t.p.) is used as the basic measure of value. In cases where market prices adequately reflect w.t.p., such prices are used. In other cases, "shadow prices" are estimated to provide the best measure of w.t.p.
Inputs and outputs are multiplied by market prices to arrive at total costs and returns which are then entered in the cash flow table. Transfer payments (taxes, subsidies, loan transactions, etc.) are added to the cash flow table.	Inputs and outputs are multiplied by unit economic values to arrive at total economic costs and benefits which are then entered in a total value flow table. Transfer payments are not treated separately, but included as part of economic costs or benefits as appropriate.
3. Comparing costs with benefits	
Using cash flow table, calculate chosen measures of project worth or commercial profitability.	Calculate chosen measures of economic efficiency or economic worth, using the information in the total value flow table (e.g., rates of return, benefit-cost ratios).
4. Dealing with uncertainty: Sensitivity analysis	
Test results for uncertainty by varying values of key parameters in a sensitivity analysis.	Test results for uncertainty by varying values of key relationships/parameters in a sensitivity analysis.

If both financial and economic efficiency questions are being asked, they generally are dealt with together, since both have much in common in terms of information requirements and procedure. The steps in a financial analysis are more straightforward to carry out and clearer in concept. Therefore, assessments generally start by answering the financial questions related to financial profitability for given groups and then the results of this step are used as a starting point for the economic efficiency analysis.

Economic efficiency (or financial efficiency, for that matter) generally is measured in terms of returns, or benefits, per unit of cost. One of the problems encountered when doing economic impact assessments for the new generation of forestry projects is the fact that different groups of people have different ideas concerning the numeraire that is appropriate to use. Thus, for some it may be returns per unit of capital, for others returns per unit of labour; for still others it may be returns per hectare of forest (see box 4.4).

Box 4.4.

A study shows that, if managed on a sustainable basis for nontimber and timber products, a certain part of the Amazon forest has an estimated capital value of some $6,000 per ha vs. $1,600 per ha if the land is converted to slash and burn agriculture.[1] One conclusion that might be drawn is that the forest is much more valuable if kept as an extractive reserve and managed for products on a sustainable basis. Yet, local forest farmers continue to practice slash and burn agriculture on the land. Why?

Part of the dilemma is caused by differences in value perspectives. The value of the extractive reserve is expressed in terms of value of output *per unit area*, while the local farmer is looking at value in terms of per unit of his/her *labor* required to get various benefits, since to the farmer this is the scarce resource and he or she wants to maximize returns to it. Since the farmer believes that sustainable extractive activities provide less return per unit of labor, the farmer also believes there will be a higher return on his/her *labor* by practicing slash and burn agriculture, perhaps taking out an initial harvest of selected forest products before clearing and burning. To the farmer, land is abundant; labor is the scarce resource. Economic reasoning therefore suggests that returns should be maximized per unit of labor.

Of course, either value figure or number could be used, *depending on the decision context or point of view adopted*. For an environmentalist from a developed country concerned about tropical deforestation in terms of area (hectares) destroyed and area protected from destruction, the value per hectare may be the relevant one. For the forest farmer, with his/her limited labor resources, the higher value return *per hour of labor* expended for slash and burn agriculture is relevant. The question is: Who makes the decisions and, thus, whose point of view is relevant?

[1] The present or discounted value of estimated future returns from the forest and land.

Different groups, e.g., commercial loggers, environmentalists, slash and burn farmers, etc., have different perspectives on forest values. Environmentalists have an interest in *total* present and prospective use and nonuse values. They generally are interested in value of the forest in terms of area, or on a per hectare basis, i.e., total value of a given forest area.

The other groups that attach positive value to the forest are interested mainly in the partial values, or benefits, that accrue directly to them as consumers and producers of forest products, or as forest dwellers. Commercial producer groups may be interested in the net value of their products per unit of capital investment. Subsistence groups might be interested in value of outputs which they can get per unit of labour input, which often is their scarce resource and thus provides their yardstick for value. Finally, there is the group that values mainly the land on which the forest grows.

A complicating factor for decisionmakers trying to sort out the different groups and the various impacts on them is that most individuals in society fit in more than one group, e.g., in both the environmental group and the commercial consumer or producer group. Thus, individuals who lobby for protection of the forest also consume outputs from the forest, almost without exception, and thus fit in the commercial producer/consumer group. Reconciling the different value perspectives of the two groups thus involves coming to grips with the overlapping roles and value perceptions of individuals within the groups. But that is a problem that affects decisionmaking quite beyond the task covered in this paper, namely that of developing the value measures to use in decisionmaking.

Several conclusions emerge from the discussion in this chapter on value perspectives:

1. There is no one absolute measure of economic value for a forest and the land on which it exists. All economic values are relative in terms of points of view adopted and in terms of supply and demand conditions facing the different groups using the forest. Value perceptions can change rapidly over time.

2. The various points of view are not for the most part complementary, and often the value perspectives involved are in direct conflict.

3. These conflicts in points of view and in value perspectives create problems in terms of knowing how best to develop values for decisionmaking. Each group with a different point of view likely will attach a different set of values to the competing potential outputs from, or uses of, a given piece of forest. Further, decisionmakers need to consider the claims and value perspective of those who want to clear the forest and use the land for other purposes. Thus, in terms of decisions, there will be need for hard choices among value perspectives.

No particular point of view or set of values is the *right* one—other than in the eyes of each of the interest groups. In order to understand the different values, one needs to apply a variety of assessment techniques. The following chapter reviews in highly summary fashion the main techniques available and their potential usefulness in actual field situations.

Concluding Comments

Obviously, there may be other questions, or variations on the twelve discussed above, that are relevant in specific cases, or to specific groups. However, based on experience, if the above questions are addressed adequately, then the decisionmaker can be fairly sure that s/he has addressed the main issues related to distributional, sustainability, and efficiency impacts of the new generation of forestry projects.

5

PLANNING ASSESSMENTS

The previous chapter laid out the major types of questions of concern in assessing the potential or actual impacts of the new generation of forestry projects. In the present chapter, issues associated with assessment design are discussed. Before deciding on the specific method and technique to use in answering each of the relevant questions, it is important to consider:

- the need for adequate specification of questions to be answered in the assessment;
- the stage in the project development process at which the questions are being asked; and
- the technical and institutional constraints on the overall assessment.

The first consideration is needed so that the assessment is set up to answer the right questions. Too often, an assessment is started without having specified in detail what the end product should look like, i.e., what type of answers are wanted. Without adequate specification, wasted effort can result.

The second consideration is needed for two reasons. First, the same questions generally are relevant at each stage in the project development process, but the approaches to answering them will be different (appropriate techniques do not depend only on the type of question asked, but also on the stage, e.g., whether we are dealing with ex ante or ex post situations). Thus, at the early stages, the questions are asked ex ante; at later stages, after the project is being implemented, the same questions often are asked in an ex post sense, i.e., did the project in fact have the impacts that were initially expected. The second reason to explicitly consider project stages is that duplication in effort can be avoided in the later stages if one consciously remembers that the same questions need to be addressed over the life of the project. Thus, for example, there is potential to develop common data bases that can be built up during the project process.

The third consideration is important so that (1) limited resources can be allocated properly to answering each of the priority questions; (2) timing and intensity of efforts can be adjusted to reflect needs and resource constraints; and (3) decisionmaker concerns for credibility and reliability can be taken into account (e.g., making the assessment transparent enough to be accepted).

In the remainder of this chapter, each of the three considerations is explored further.

Need to Clearly Specify Each Question Being Addressed

Decisionmakers may ask a question without specifying enough detail for analysts to provide answers. In that case, the analyst will have to elicit specification. For example, if the decisionmaker merely asks, what is the financial worth of the project? the analyst will have to find out financial worth from *whose point of view*? and what is the *measure of financial worth* the decisionmaker wants? Similarly, an economic efficiency analysis can be carried out from the national, the regional, or the local point of view. The point of view needs to be specified, since the information required and the results generated will be different for different points of view.

In the case of income distribution questions, there is a need to be quite specific about which groups are of interest and to whom they are of interest. For example, what do we mean when the question is asked: What are the benefits to low income people? How shall we define *low income* in the assessment? Some interaction between decisionmaker and analyst may be necessary early on in order to reach agreement on these types of points.

When proposing that an economic impact assessment be conducted, decisionmakers sometimes neglect to consider the perspectives or questions of all groups involved. Groups control resources and must decide whether to commit these resources to a given project and how much to commit. The assessor has to keep this in mind when defining the full array of questions. For example, a project can be extremely attractive from a national economic efficiency point of view, but if it is not also financially attractive to all private entities which have to commit resources to it, then it will not be undertaken as planned.

A financially unattractive project can be made financially attractive if the government (the public) provides subsidies (incentives). Whether or not such subsidies are considered justifiable in a socioeconomic context depends directly on their required magnitude in relation to the economic surplus associated with the project (economic benefits minus economic costs, appropriately adjusted). Similarly, analyses which show that a project appears to be more attractive financially than economically may provide some indication of the desirability to tax the groups involved.

The introduction of planned interventions implies that changes will occur and that benefits will result which can have an impact at various levels—household, community, national, and regional/international (FAO 1989a). The analysis should propose ways to monitor and measure the planned *benefits* of such interventions. This means moving beyond questions related to *outcomes*, number of nurseries established, technicians trained, or volume of wood harvested, and on to questions regarding *impacts* they will have, specifically what benefits will result in relation to the chosen dimensions of welfare. This calls for identifying simple, key indicators of impacts which can be used in answering questions.

For example, a favoured indicator of social status in the rural areas of the Third World is house type. In its crudest form, the number of tin roofs is used as a measure of the relative affluence or poverty of families or villages, either at one time or over time (Chambers 1985). But this has its limitations. In the case of the Provincial Area Development Programme in central Java, Indonesia, two sets of indicators were compiled for the relative prosperity of beneficiaries (Soetoro 1979). The first set focused on the standard items of material wealth that could be observed in and about the household compound, particularly the type of materials used in the construction of the walls, windows, floor, and roof. The second list concentrated on the perceptions of a particular group of villagers about who was and who was not prosperous. Although the first set was more amenable to quick checks by an outsiders, the second set—which is displayed in table 5.1—drew more heavily on the knowledge and values of the local population.

Table 5.1. Poverty indicators in central Java.

A man is poor if he has no land, or if he has to rent out his land.
A man is poor if his house costs less than 10,000 rupiah ($16) to build and nobody wants to buy it.
A man is poor if he has to work as a paid labourer.
A man is poor if, when he wants to go somewhere, he has to borrow a bicycle.
A man is poor if he cannot live by farming alone and has to make handicrafts.
A man is poor if he has to mix his rice with cassava and corn.

Source: Soetoro 1979.

This second approach has the following three advantages (Honadle 1982):

1. It has a higher probability of being continued as a yardstick after external project assistance is withdrawn because it is rooted in the local context.

2. It improves the likelihood that locally defined social categories will not be overlooked by technical staff.

3. It mobilizes local knowledge, articulates it, and begins a process of basing analytical categories on rural perceptions.

Assessment at Different Stages of the Project Process

Decisionmakers and those impacted by projects, need answers to the various questions mentioned in chapter 4 at different stages of the project development process. This process involves the four main phases of *identification, preparation, implementation,* and *follow up*. Figure 5.1 illustrates the phases. The kinds of questions asked depend upon whether they are being asked about a potential or proposed project, about an existing ongoing project, or about a completed or past project.

Impact assessments are done at all stages in the project development and implementation process. Because assessments are designed to answer specific kinds of questions, an assessment at one stage of the project process may differ in some particulars from assessments conducted at other stages.

Although specific questions do vary with the project stage, there are many similarities in the types of questions that need to be answered at the different stages. Furthermore, similar assessment methods are used at each stage of the project development process, and require similar *kinds* of information. However, the means for obtaining information, and the level of detail required, may vary from one stage to another. Some of these differences can be illustrated by looking at the process of financial assessment.

At the project identification stage, rough estimates of costs and returns may be sufficient to determine whether or not potential projects are acceptable for further consideration. At the project preparation stage, considerably more detail and more precision may be needed to evaluate alternative project designs. At both stages, data on costs and returns are estimates of future events. There is considerable uncertainty associated with any such estimates, and

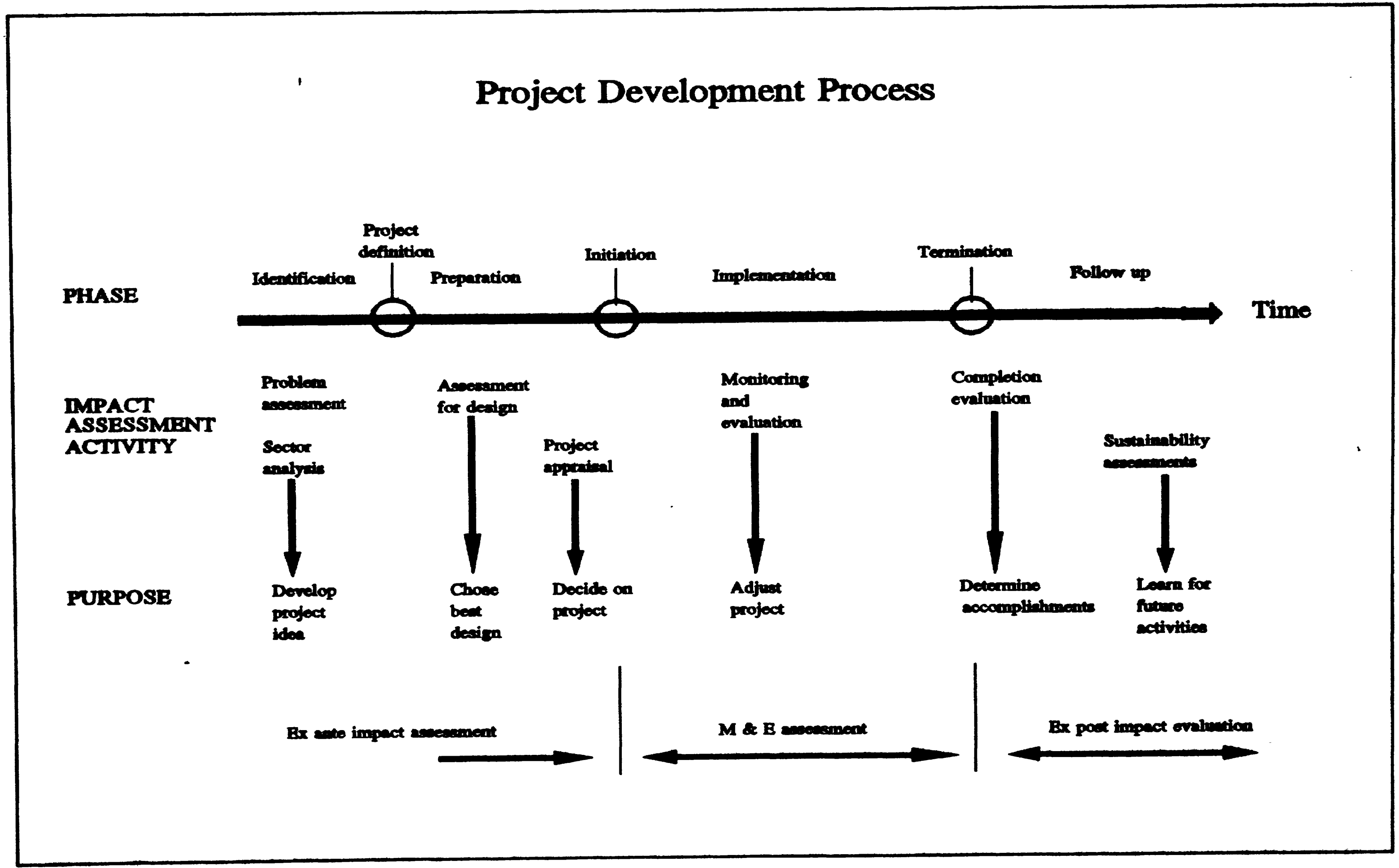

Figure 5.1. The project development process.

it must be recognized that the results of assessments at these stages are based on estimates of future events which can never be known with certainty.

At the project implementation stage, attempts will be made to measure the costs and returns that have occurred, monitor ongoing expenditures and receipts, and estimate those that are likely to occur. Here, time and funds may or may not allow adequate observations to be made to determine true costs and benefits. It may be difficult to obtain information about past costs and benefits from existing records, which may or may not be available, complete, accurate, and in a form useful to the analyst. Since the project is not yet complete, estimates must also be made of future costs and benefits with all of their associated uncertainties. Record keeping systems need to be considered early in the project development process in order to support assessment work in later phases.

After project completion, costs and benefits must be estimated from evidence existing in records, if they are available, or estimated from observations of current conditions. The longer the time span since project completion, the less the likelihood that records of project activities and results will be available.

One of the difficulties in obtaining and coordinating information at various stages of the project process is that the assessment at each stage of a project often is isolated from assessments at other stages. Thus, an analyst at a later stage may have little or no information available from assessments of the same project at earlier stages. Information is costly to obtain, and every effort should be made to use it effectively and efficiently. Project impact assessment should be viewed in a systems context within the project development process. Plans should be made to link assessment activities throughout the project process as closely as possible, but without compromising the independence and verification functions of some types of assessments.

Regardless of the stage in the project development process, designing an assessment should be an iterative process. Decisionmakers propose questions they want answered and suggest funding and time constraints for the proposed assessment. Technical personnel determine which assessment methods could be used to answer the questions, and whether the data and information required by the methods are available or could be obtained within the funding and time constraints specified. It may not be possible to answer all of the proposed questions in the detail desired with the funds and time available. If so, then the decisionmaker may have to change the questions and/or the constraints; or it may be necessary to change the assessment methodology to arrive at a feasible compromise.

During the project identification and preparation phases the actual assessment activity also should involve an iterative process. One does not want to waste a great deal of resources on detailed assessment of options or alternatives that will be discarded by the next stage in the project development process. Rather, decisionmakers and analysts can start with initial rough designs of potential projects and do a quick overview appraisal of those potential designs. Such appraisals may use rough estimates of inputs and outputs, and of feasibility and desirability, with detail sufficient only to weed out those projects that clearly are not feasible or not desirable.

For example, in a project to produce industrial roundwood in plantations, one might first examine potential species to be planted and determine which species would produce wood in a form acceptable to the industry, and which would be suited for potential sites available for planting. Those not suitable could then be eliminated from further consideration. At the next iteration, one could classify suitable species with regard to the potential costs and benefits from growing them as roughly high, medium, or low. All other things being approximately equal, high-benefit/low-cost species are likely to be more desirable than species with medium or low benefits and medium or high costs. After an initial rough analysis of alternatives, the decisionmaker and analyst are in a good position to reject the least desirable ones. Those that survive this initial assessment then can be used in a more detailed design, and a more detailed assessment, using more precise data and information. This type of interaction of design and appraisal that progresses through increasingly detailed and sophisticated design and analysis stages is a useful approach to impact analysis.

Technical and Institutional Constraints on Assessments

The previous paragraphs have laid out some of the fundamental factors to consider in designing an assessment strategy and approach. In choosing a particular empirical approach to assessing or answering the various impact questions asked, not only the technical merits of different approaches should be considered, but also the objectives involved and the criteria used in judging the usefulness and the credibility of an assessment (figure 5.2). The most technically defensible assessment approach should produce results which meet the needs of the decisionmaker, and not produce results too late to be used, nor cost too much to be acceptable.

In choosing the approach to be used in an assessment, one must weigh carefully the technical factors, the purpose and primary use of the assessment, its usefulness in terms of timeliness and relevance, and the likely credibility of the results. This latter point is important, although sometimes overlooked. If assessment results are going to be used to justify future or past project activities to others, then one must be concerned with how these other people will view the results of the assessment. If the reputation of the analysts is suspect, if the results are not easily understood, if there is a high level of uncertainty and controversy over the data and information used and/or produced by the analysis, if the results are not in agreement with information available from other sources, and if they are not acceptable to the project advisors, the assessment, however well conducted from a technical standpoint, is likely to be useless in achieving objectives.

In sum, in deciding on an approach and how the assessment is going to be carried out, project planners and decisionmakers should recognize the practical limitations imposed on assessments by

- the questions to be answered about the project;
- the funding and time constraints imposed on the assessment process;
- the capabilities of those making the assessments, and the constraints under which they must work; and
- the availability of data and information required by the proposed assessment methodologies.

There are many ways to conduct assessments and many techniques that an analyst can choose from—ranging from a review of existing information to producing an in-depth case study. However, irrespective of the specific technique or techniques practised, certain practical steps can be outlined which will help to make the approach as straightforward as possible. The first is to establish priorities and identify information needs. The questions that must always be borne in mind are: *Who is going to use this information and for what purpose?* Answering these two questions should determine what to ask and how to present the results.

Depending on the type of forestry project and the stage it has reached in its evolution, those directly involved should specify what information is needed, why it is needed, and who will use it. Also relevant is how much it will cost to collect, process, analyze, present, together with how long it will take. To make this process easier, Chambers (1981) has championed the practice of *optimal ignorance* and *appropriate imprecision*. The former refers to the minimum information required to make reasonable decisions; the ability to determine just what this level is comes with experience. The latter refers to the fact that, while imprecision is not a virtue, saving time and money is. The degree of precision depends largely on the nature of the questions asked. For example, in a project to promote watershed management, more precision might be desirable on information about individual incentives than, say, information on available technologies.

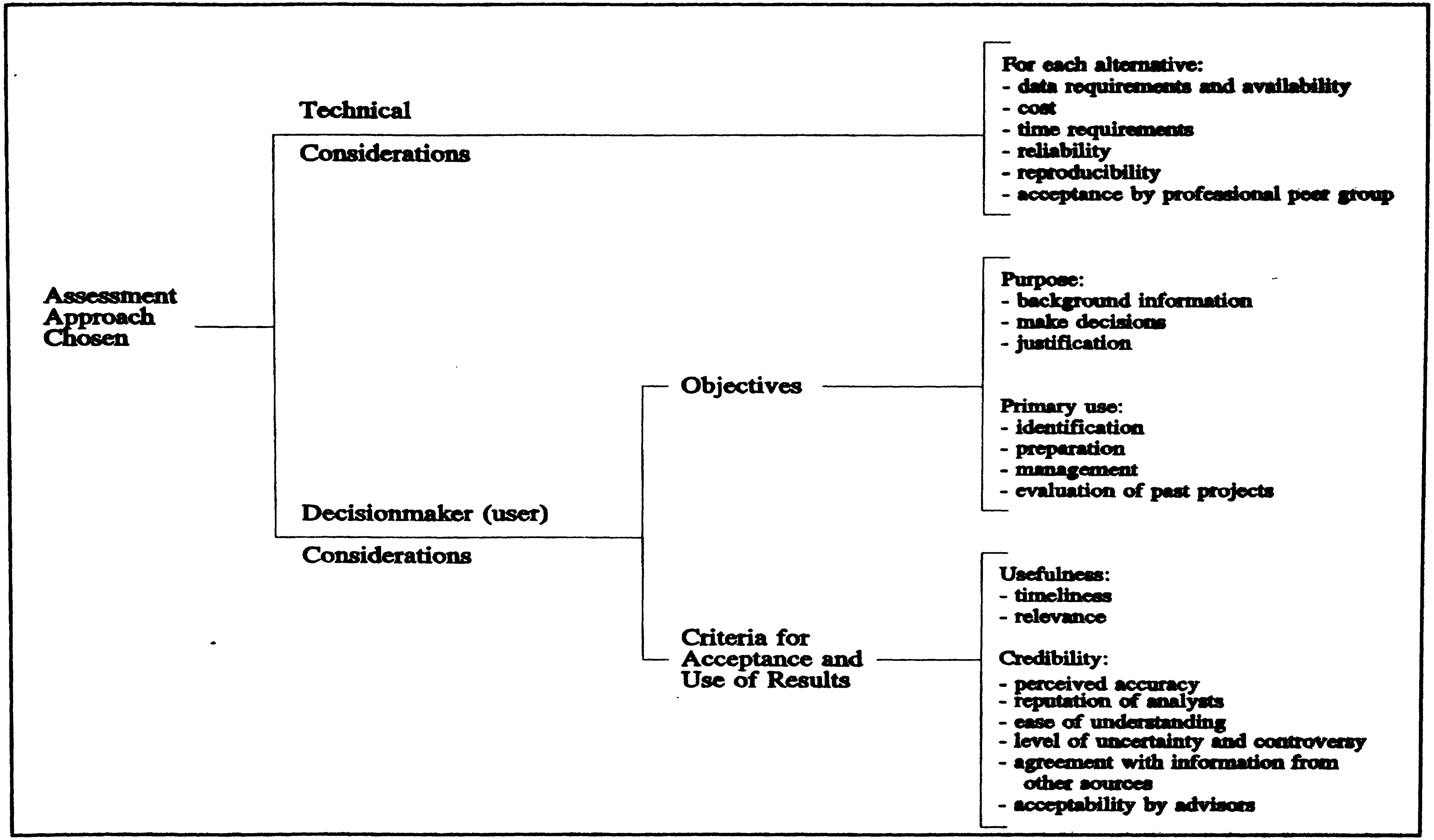

Figure 5.2. Factors affecting the choice of approach in assessing impacts of forestry projects.

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